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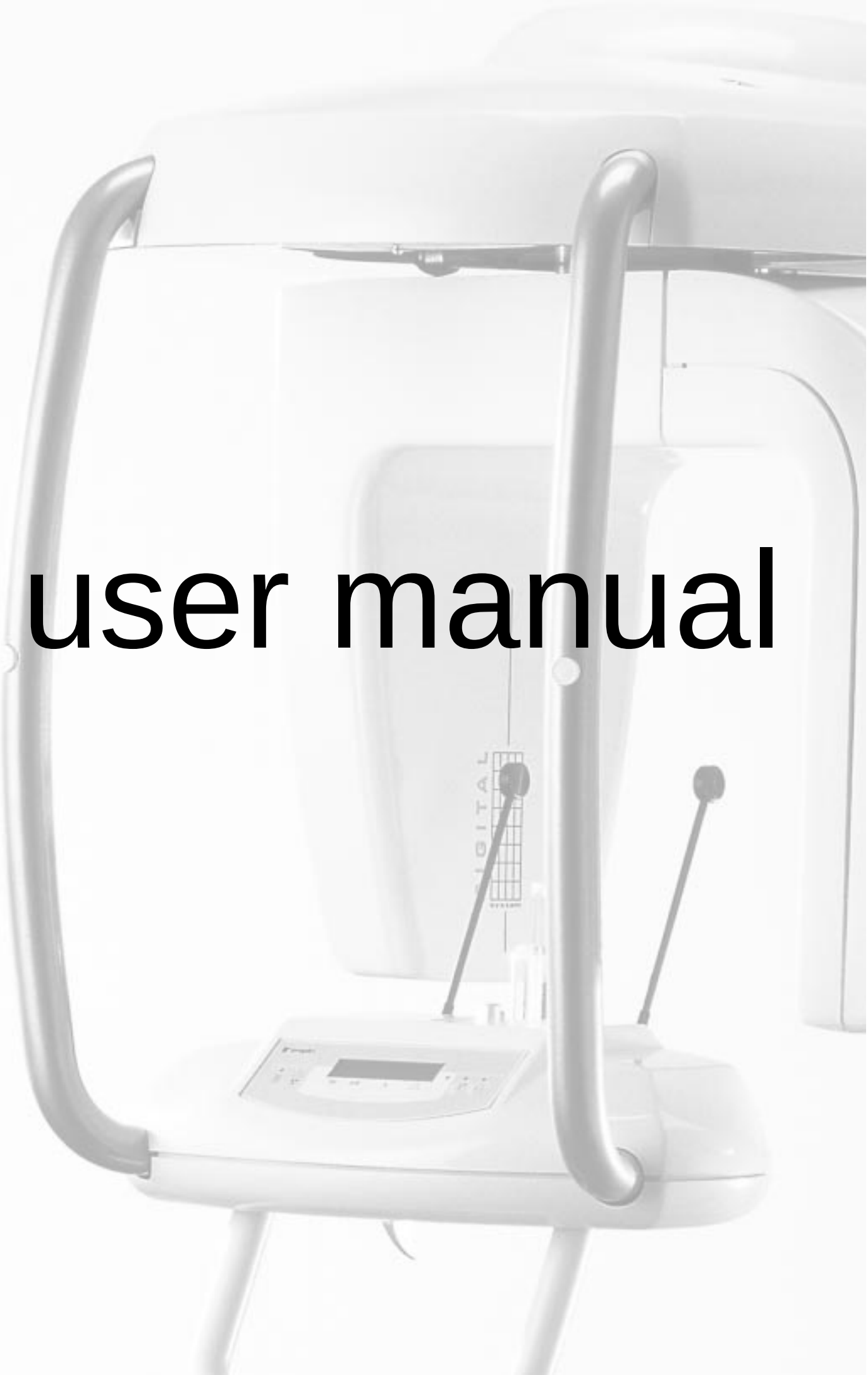

user manual

Congratulations on your purchase of a Trophy radiography system. Thank you for your confidence in our products and we will do all in our power to ensure your complete satisfaction.

You now have the User Guide for the TROPHYPAN, the digital extra-oral X-ray unit. We recommend that you thoroughly familiarize yourself with this Guide in order to make the most effective use of your system.

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The RVG technology is the subject of an international patent registered by Trophy Radiologie.

This document was originally written in French.

Revision date: 04/2003

TROPHYPAN complies with Directive 93/42/CEE relating to medical equipment.

CE 0459

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Notes for the User

X-rays are not innocuous and can be dangerous if not used properly. Therefore, the instructions and warnings contained in this Guide must be carefully followed.

As a manufacturer of radiology units which conform to the most stringent radiological protection standards in force throughout the world, Trophy's know-how guarantees the maximum degree of protection against radiation hazards.

Nonetheless, you are handling a radiology unit which is specially designed to emit a dose of x-rays in order to carry out a medical diagnosis with the aid of a Trophy digital imaging system (exclusive patent).

The room in which your radiology unit is to be installed must comply with all official regulations applicable to protection against radiation.

Your dealer will be pleased to assist with the initial use of your radiology unit and will supply any relevant information you may require.

The "WARNING" and "IONIZING RADIATION" symbols signify: "WARNING: IONIZING RADIATION".

To install, operate and service the unit, follow the instructions contained in this Guide.

Warnings and safety instructions

CAUTION Laser radiation. Do not look into the beam.
Class 2 laser product
This unit emits laser radiation.
For maximum safety, advise the patient not to look at the beam.
Before illuminating the beams, lower the Frankfurt plane beam to the lowest level.
While making adjustments, ensure that the beam is not directed into the patient's eyes.

DANGER This is an electrical unit. Do not expose it to water spray.
Such action may cause an electric shock or a malfunction of the unit.

WARNING The user is responsible for the operation and maintenance of this unit.
This unit must only be operated by legally qualified persons.
The cover of the unit must not be opened by the operator.
When necessary, inspection and maintenance operations should only be carried out by an approved Trophy technician.

WARNING This unit must be installed in x-ray room which complies with current installation standards.
From this location, visual or audio communication must be maintained with the patient, together with access to the control interface during exposure.

WARNING The TROPHYPAN unit has been designed to comply with European and international medical standards. In order to ensure conformity, the PCI interface board must be installed in a computer configuration which conforms to IEC 950 Standard.
The PC and the peripheral equipment connected to it must not be located in the immediate vicinity of the patient, thus at least 1.5 m from the panoramic unit.
For details of the data processing system (PC and screen), refer to the installation guides for your computer. Sufficient clear space must be left around the CPU in order to ensure that it is properly ventilated.
In order to obtain maximum image quality and visual comfort, the screen should be positioned so as to avoid direct light reflections (internal or external lighting).

WARNING Do not operate the unit if there is the threat of an earthquake.
Following an earthquake, ensure that the unit is operating satisfactorily before using it again.
Failure to observe this precaution may expose patients to hazards.

WARNING X-ray equipment can be hazardous to patients and the operator if the exposure safety factors and operating instructions are not observed.

WARNING Do not place objects within the field of operation of the unit.

WARNING We recommend that the patient is wearing a protectrice lead-lined apron, unless other Radiation Protection Protocols apply locally.
Ensure that any parts of the unit which may come into contact with the patient and the operator have been disinfected after each patient has been exposed to X-rays.
While adjusting the height of the unit, the operator must ensure that the patient is kept clear of the mechanism.
When the unit is not in use, ensure that the ON/OFF switch is set to OFF (O).
If the unit develops a fault, switch it off (O) and display a notice ‘Unserviceable’.

WARNING To dispose of the unit and/or its components, contact our representatives or our Company.

WARNING Do not rotate the arm unit by hand as this may damage the unit.

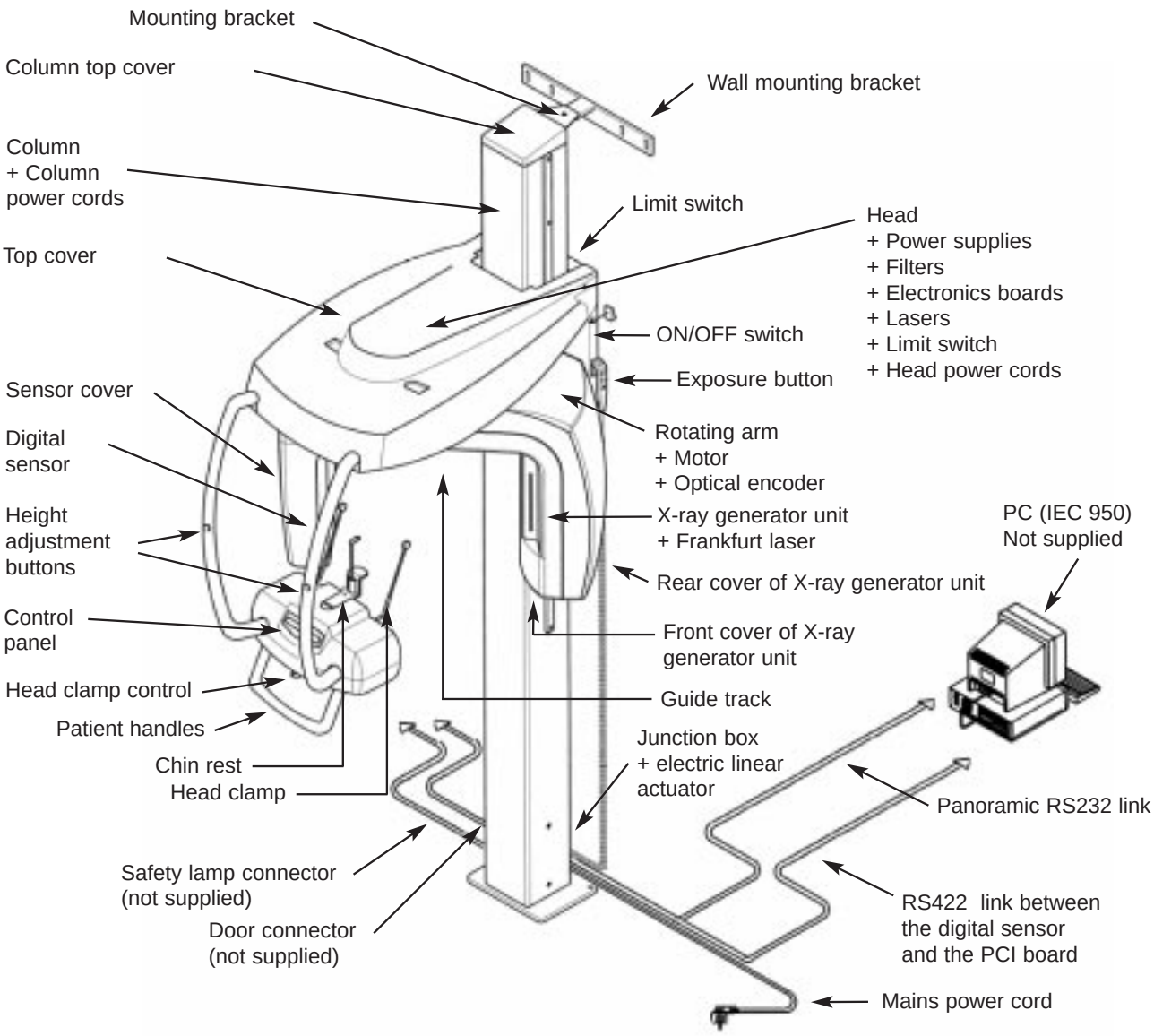
WARNING The operator must ask the patient to refrain from moving during the entire period of exposure.

WARNING The operator must ask the patient to refrain from moving until the ARM UNIT has stopped moving and throughout the RESET movement.

SECTION 1

FUNCTIONAL DESCRIPTION

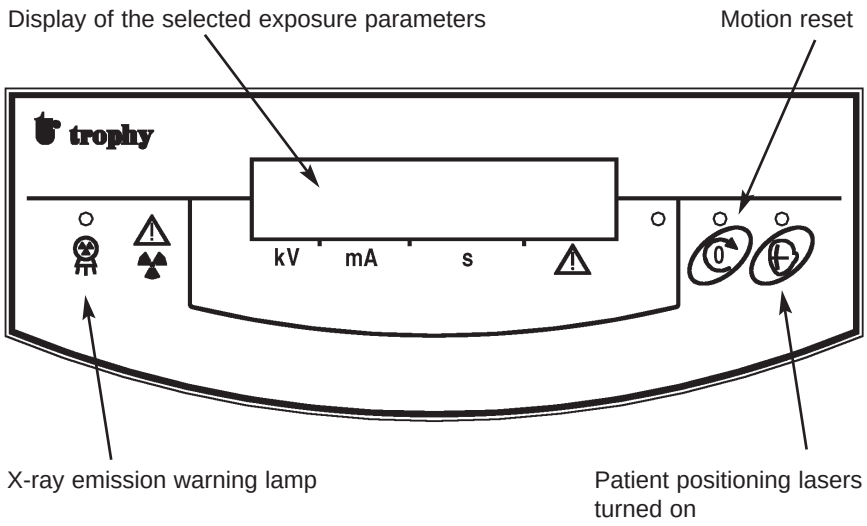
Functional description of the panoramic unit



Operating controls

Operating controls on the TROPHYPAN

A/ The control panel



B/ The exposure button

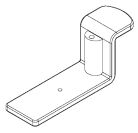
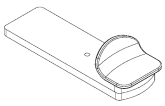
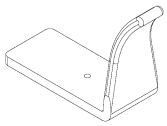
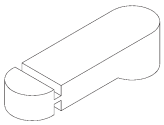
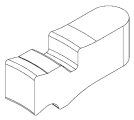
Operating controls on the PC

The graphic interface

(Refer to the next section for a description of the graphic user interface.)

Accessories

The following accessories, used for positioning the patient, are supplied with the unit in a separate carrying case:

Product	Code	Description	Quantity
	JR 265	Panoramic chinrest (supplied fitted to the unit)	1
	JR 263	Chinrest for the Maxillary Sinuses program	1
	JR 264	Nasal support for the TMJ program	1
	HY 048	Standard bite block	6
	HT 182	Bite block for 'Edentulous patients'	2
	FC 020	Bite block mounting	2
	BD 103	Plastic-coated protective covers (box of 500 items)	1

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SECTION 2

DATA PROCESSING CONFIGURATIONS REQUIRED IN ORDER TO SAFEGUARD IMAGE QUALITY

Environment

For details of the data processing hardware (PC, monitor, printer), refer to the installation and user guides for your PC. Sufficient space must be left around the PC in order to provide satisfactory ventilation. To benefit from the enhanced image quality and for greater visual comfort, the screen should be oriented is such a way as to prevent direct reflections of light (room lighting and daylight).

Configuration of the display in Windows

Refer to the information in the table below to configure the graphics card according to the Trophy imaging peripherals which have already been installed.

NOTE
For optimal visual comfort it is recommended that TROPHYPAN should be used in 1024 x 768 mode.

Color	800x600	1024x768	1200x1024
True color 24 bits	RVG TROPHYPAN STV	RVG* TROPHYPAN* STV*	RVG* TROPHYPAN* STV*
True color 32 bits	RVG TROPHYPAN STV	RVG* TROPHYPAN* STV*	RVG* TROPHYPAN* STV*

* This resolution is only possible with SVGA cards containing 4 MB of video memory.

Minimum configuration of the PC

TROPHYPAN can only be used if the minimum configuration of the PC is as follows:

NOTE
The minimum configuration may change if an STV or an RVG is connected to the PC or if the Trophy Management software is used (refer to the relevant installation guides).

Microprocessor	Pentium III or equivalent
Standards	IEC 950
Hard disk	20 GB
Graphics card (SVGA)	4 MB
RAM (random access memory)	64 MB (Windows 98, 2nd edition), 128 MB (Windows 2000, XP, Me)
Operating system	Windows 98 (2nd edition), Me, 2000, XP
Type of PC	Multimedia
Available hardware slots	One PCI slot + One RS 232 serial communication port
Drivers	CD-ROM + floppy disk
Data backup system high capacity magnetic medium	

Quality of the monitors

Data processing monitors of different sizes are available (15-inch, 17-inch, 19-inch and 21-inch) as well as different qualities of tube (standard, high contrast, high definition). Since the quality of the TROPHYPAN image is dependent on the quality of the tube, the preferred choice is a monitor with high contrast and high definition, characterized by its deep black tube. The size (pitch) of the smallest pixel which can be displayed is equally important and determines the sharpness of the display; the pitch should be as fine as possible. The monitor is the final link in the digital imaging chain, so it must be selected with great care.

As far as flat-screen monitors are concerned, it is still difficult to find a version which is capable of satisfactorily reproducing the gray scales. Low-cost products with 15-inch screens should be avoided in favor of 17-inch versions. Particular attention should be paid to the fields of view which are a feature of every flat screen, as well as its luminosity. The higher the values for these parameters, the better the screen.

SECTION 3

THE GRAPHIC INTERFACE

The Trophy Windows software program forms the user interface with TROPHYPAN. Thus, the TROPHYPAN images are generated in the same way as STV or RVG images.
Trophy Windows was specially designed for use with Trophy sensors, which is why only this software program is able to exploit all the characteristics of the sensors.

NOTE
Also refer to the User Guide and the Trophy Windows online Help function.

In order to acquire a TROPHYPAN image (Panoramic, Sinus, TMJ), begin by selecting a patient medical record and then access the Trophy Windows Image Processing Module.
Activate the TROPHYPAN graphic interface. To do this, click on the acquisition icon (shown on the opposite page). The graphic interface is displayed.
At this stage it is possible to choose the type of image to be produced and to enter the exposure parameters. All the actions initiated on the graphic interface have a direct effect on the panoramic unit, to the extent that it is then only necessary to position the patient and press the exposure button as soon as all the options have been selected.
The image is displayed in real time in the Preview window. When acquisition is complete, the graphic interface disappears from the screen and is replaced by the Trophy Windows software program. The newly-acquired image is displayed in this program so that it can be read with the aid of the various digital imaging tools.

Acquisition icon

The configuration of the graphic interface is as shown below:

① **Image Preview window:** receives the image in real time as the tubehead is rotated.

② **Summary of Parameters and Selected Program window:** confirms the current settings of the panoramic unit. This information is stored in the TROPHYPAN image and can be accessed by clicking on the image with the right mouse button. It should be noted that this information is also incorporated in every image which is printed out via Trophy Windows.

③ **System Status window:** displays the various messages originating from the panoramic unit.

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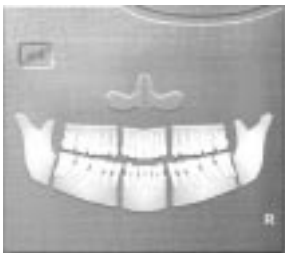
④ **Main Window Selector.** By clicking on the button or on the text, the User can display the different functional blocks: Program, Patient or Parameters.
⑤ **Functional Blocks:** click on the button or on the names "Program", "Patient" or "Parameters" to enter, in stages, all the information required for acquiring the image.

Functional blocks

Program



Configured as shown opposite, the Program block is used to select the type of image to be produced. Click on the segments to be X-rayed (posterior, anterior, TMJ or sinus). Only the segments which are highlighted on the display will be exposed to the X-rays and will appear on the image.

NOTE Nonetheless, the areas are approximate and are dependent on correct positioning of the patient and his/her morphology.

To produce a full panoramic image, the complete dental arch must be selected.

ATTENTION
This diagram is a representation of the jaw, viewed from the patient. The right side diagram shows the right side of the patient.
Depending on the configuration of Trophy Windows (refer to the 'Preferences' menu) the image may be viewed in mirror effect or as shown above.

The Maxillary Sinuses program cannot be activated at the same time as a segment of the dental arch or the TMJs.

The TMJ program is selected by clicking on one of the TMJs. It consists of views of the left and right TMJs with the mouth either open or closed (at the choice of the operator).

A 4-view TMJ image can be produced by clicking on the "x4" icon. This consists of views of the left and right TMJs with the mouth open and the mouth closed.

The panoramic unit then makes an initial pass. Acquisition of the image is then suspended to allow time to issue new instructions for positioning the patient.

The panoramic unit then makes a return pass before recording the last two views.

If the 'x4' icon is not activated, the image is acquired at the end of the first pass.

Patient

Configured as shown opposite, the Patient block is used to select the morphology of the patient to be X-rayed. First choose the basic morphology (Adult, Child), then the relative morphology (small, medium, large). Accurate selection of these parameters will influence the subsequent high quality of the image.

Example: If the Child/Medium morphology is selected while X-raying a rather stout adult, the image will be too light (under-exposed).

Parameters

Configured as shown opposite, the exposure parameters are preprogrammed on the basis of the information supplied in the preceding two functional blocks. However, the kilovolt (kV) and milliampere (mA) values can be modified.

Then simply click on the + et – buttons provided for this purpose. At this stage it is possible to store the parameters by clicking on the "Mem" key in order to retain the previously-selected modifications to the size and morphology. If the "Mem" key is not used, the default parameters will be applied again when the next image is acquired.

As a general rule, the kilovolt values should be increased if the bone structure of the patient is dense. On the other hand, the kilovolt values should be reduced for patients with low bone density (children, elderly persons). Thus, it may be necessary to adjust the milliampere values in order to obtain darker images (higher mA values) or lighter images (lower mA values).

NOTE The higher the kilovolt values, the lower the contrast on the image. However, the clinical information is incorporated in the image and it can then be revealed by deploying the Highlight tool (refer to the digital tools).

Table of radiographic parameters preprogrammed by the manufacturer:

Morphology	Small		Medium		Large	
Parameters	kV	mA	kV	mA	kV	mA
Child	70	5.0	70	8.0	70	10.0
Adult	70	8.0	70	10.0	70	12.0

These parameters can be modified at any time by the User by accessing the "Parameters" functional block in the graphic interface (refer to Section 2).

Other functions

WARNING
Do not direct t
he laser beams into the eyes of the patient. Warn the patient of the potential risk.

Activate Laser Beams: this function is used to activate the light beams representing the Frankfurt plane, the canine plane and the sagittal-median plane, which are directed toward the patient's face. These laser beams assist with correctly positioning the patient in the panoramic unit. Also refer to the section of this Guide dealing with positioning of the patient.

NOTE The light beams are automatically turned off after a few seconds. They can be reactivated from the PC or directly from the panoramic unit.

Reset: this function resets the panoramic unit to its start position before producing a new image. If the camera is not in its start position, a message is displayed and the exposure button is disabled.

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X-rays ON/OFF: this function is used to operate the panoramic unit without emitting X-rays ("X-Rays OFF" mode). If the X-ray emissions are turned off, the message 'Demo' is displayed in the status window in place of the "Ready" message.

NOTE In order to instill an atmosphere of confidence in children, it is possible to position them and simulate the acquisition of an image before actually acquiring the image.

Sound ON / OFF: this function is used to mute the audible messages emitted by the graphic interface .

Information: this function is used to identify the unit (by its serial number) and the installed software program. It can also be used to reinitialize the camera and to load the default parameters set by the manufacturer.

Exit from the TROPHYPAN graphic interface: this function is used to return to Trophy Windows. Warning: any modifications to the exposure parameters which have not been stored will be lost. If this button is pressed during the acquisition of an image, the emission of X-rays is immediately interrupted.

NOTE Do not exit from the Control Panel while an image is being acquired, otherwise it will be irrevocably lost.

NOTE The emission of X-rays is only possible if the graphic interfaceof the panoramic unit is active (PC turned on and control window in the foreground and visible). In this case, the message "Ready" is displayed.

Warning and indicator lamps

Generator ready

When this symbol is green, the generator is emitting X-rays when the exposure button is activated. When it is black, the exposure button is disabled, preventing the emission of X-rays.

This symbol changes color when the "X-Rays ON/OFF" button is pressed (refer to the earlier section in this Guide).

If the generator is not ready, a message is displayed in the System Status window, indicating the action to be taken in order to be able to produce an image (this message is associated with a code, enabling more detailed information to be found in this Guide). Otherwise, the "Ready" message is displayed.

If this symbol is yellow, **X-rays are being emitted.**

Thus it is normal for this symbol to change to black during the production of images comprising non-adjacent blocks, since the X-rays are not emitted while the generator is being moved toward the next zone to be X-rayed. In every other case, the symbol is black.

NOTE Also refer to the safety regulations relating to protection against ionizing radiation, as applied in the User's country.

Cooling of the generator

The countdown indicates the time required for cooling the generator before a new image can be produced with the selected exposure parameters (mm:ss). Until this count reaches zero, the exposure button is disabled and the "Generator Ready" icon is black.

This cooling period varies automatically according to the frequency of image acquisitions and the selected parameters. This is a safety precaution designed to guarantee the operating life of the generator.

Cooling-off time between 2 image acquisitions:

Program	Exposure parameters	Cooling period
Full Panoramic	60 kV – 2 mA	10 seconds
Full Panoramic	70 kV – 10 mA	1 minute 10 seconds
Full Panoramic	90 kV – 10 mA	1 minute 40 seconds
Full Panoramic	80 kV – 15 mA	2 minutes 50 seconds

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SECTION 4

X-RAY PROCEDURES

Preparations before commissioning or during a long period of inactivity

By virtue of its technology, the TROPHYPAN is very easy to use and does not require any special procedures before it is commissioned.

However, to increase the operating life of the X-ray tube, if the unit has not been used for several days it is recommended that the following procedure should be applied

(while observing the safety regulations for protection against X-rays and with no patient in the unit):

1. Set the camera to 70 kV – 6.3 mA and produce a panoramic image.
2. Set the camera to 80 kV – 10 mA and produce a panoramic image.
3. Set the camera to 85 kV – 10 mA and produce a panoramic image.

You can then use the unit in the normal way.

Step-by-step instructions for acquiring a TROPHYPAN image

1. Start Trophy Windows and open (or create) the medical record for the patient concerned.
2. Access the Image Processing Module.
3. Click on the TROPHYPAN acquisition icon to open the graphic interface.
4. Check that the "Ready" message is displayed in the System Status window. If it is not displayed, click on the "Motion Reset" button.
5. Choose the program and the patient type then, if necessary, adjust the kilovolt and milliampere values.
6. In the Overview window check that the selected parameters conform to the examination you wish to perform.
7. Position the patient in the unit, rigorously observing the instructions specified in the "Patient Positioning" section of this Guide (see below). These instructions vary according to the selected program.
8. Leave the irradiation field and initiate acquisition of the image, holding down the exposure button until the image has been acquired.
9. The image is displayed in real time in the Preview window.
10. Verify that the image quality is satisfactory (positioning, etc.).
11. Release the patient.
12. Analyze the image, making use of the Trophy Windows image processing tools.

NOTE
The acquisition and emission of X-rays can be terminated at any time by releasing the exposure button.

Procedures for positioning the patient according to the selected program

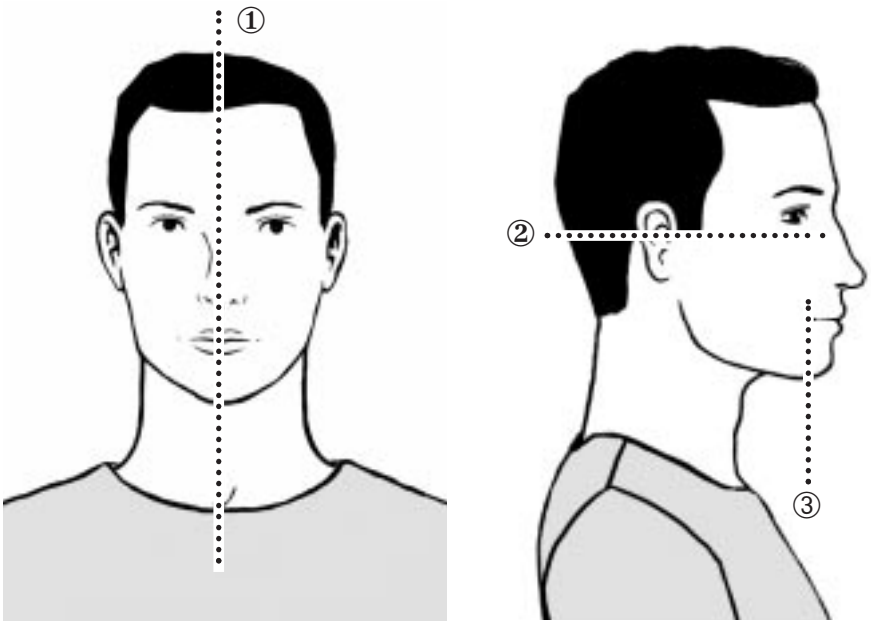
Radiological settings

With the TROPHYPAN, you can position your patient with the aid of 3 reference planes, identified by 3 laser beams:

① The sagittal-median plane

② The Frankfurt plane

③ The canine plane



① The sagittal-median plane

Adjust the position of the patient's face by aligning the sagittal-median laser beam with the sagittal-median plane of the patient.

The position of the patient's face is adjusted manually and is held in position by the 2 lateral head clamps.

② The Frankfurt plane

Adjust the Frankfurt plane with the aid of the button which is accessible on the X-ray generator unit. The laser beam must coincide with the auricular-orbital plane of the patient. If necessary, adjust the height of the sliding unit, using the adjusting buttons situated on the tubes.

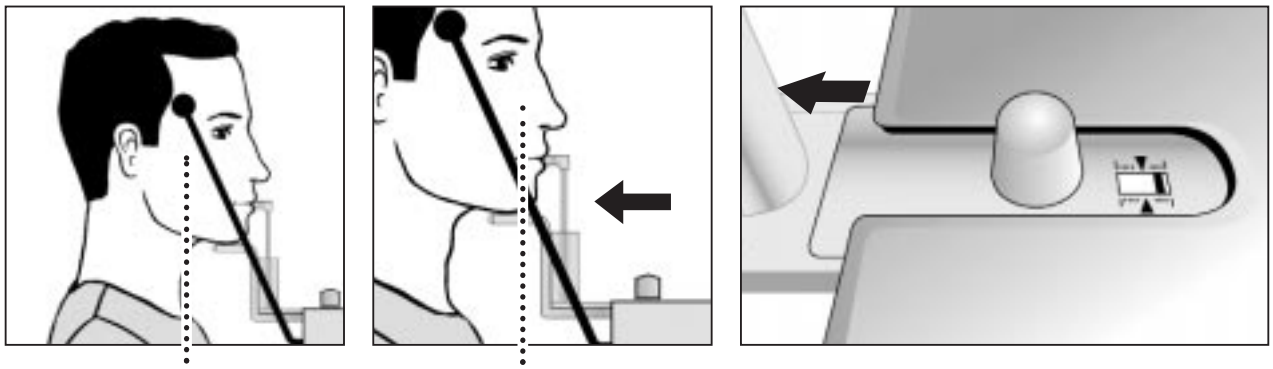
③ The canine plane

Adjust the canine plane by centering it on the canine of the patient. The upper canine of the patient acts as the reference for centering the patient in the section plane. Ensure that the apex points of the incisors are visible on the image.

If this is not the case, adjust the position of the patient's face. Move the chinrest with the aid of the button situated in the center of the chinrest.

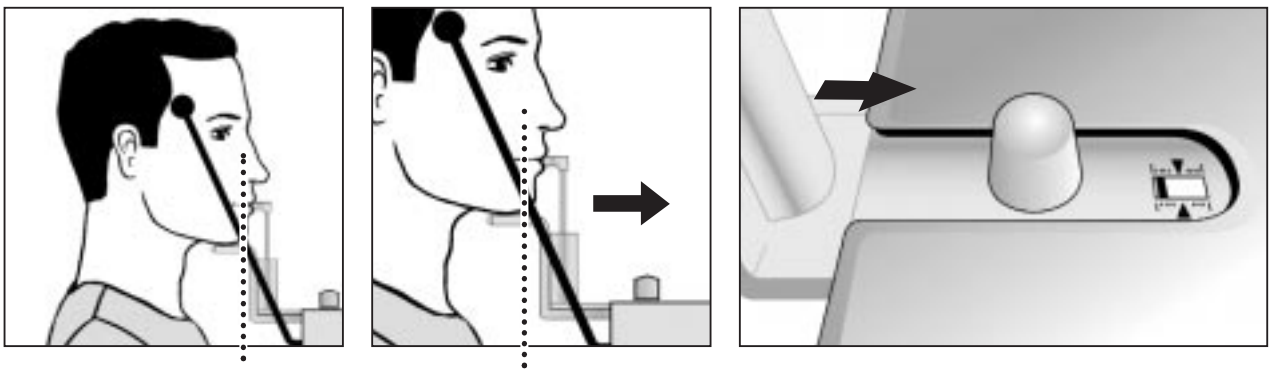
• Case 1:

If the laser beam from the canine is set too far away from the patient's face, move the chinrest support backward, using the graduation as a guide.

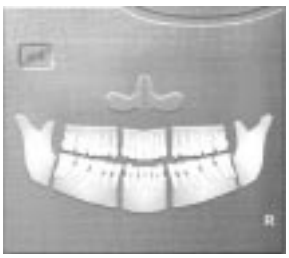


• Case 2:

If the laser beam from the canine is set too close to the patient's face, move the chinrest support forward, using the graduation as a guide.

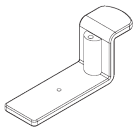


NOTE Never exceed the limits of the graduation.



Standard panoramic program

The procedure for positioning the patient is described below. This procedure must be rigidly observed.
It is summarized in point 7 of the step-by-step instructions described above. Once the procedure has been implemented, follow the subsequent step-by-step instructions as far as point 12.



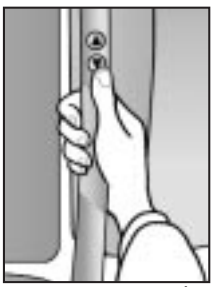
1. Install the chinrest support and the bite block provided for the panoramic type of image. Secure the support by rotating the adjusting button so that the "0" reference is aligned with the reference mark.

2. Open the side arms of the head clamp.

3. Check that the "Ready" message is displayed on the control panel. If not, press the "Reset Motion" button on the control panel or from the graphic interfacein order to reset the arm to its initial position.

NOTE Ask the patient to remove any metallic object (spectacles, hearing aids, earrings, necklaces, etc.) which may adversely affect the quality of the X-ray image.
We recommend that the patient is wearing a protectrice lead-lined apron, unless other Radiation Protection Protocols apply locally.

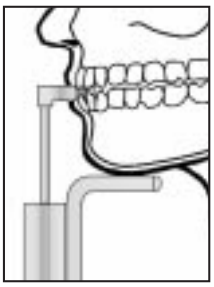
4. Position the patient in the unit.



4.

NOTE The patient must stand upright, with his/her hands on the lower handle and his/her feet slightly forward. This positioning is essential in order to release the nape of the neck of the patient and reduce the shadow of the column transferred to the image.

Adjust the height of the unit, using the buttons fitted to the vertical pillars. You can activate one (or both) switches by simply pressing them. Then adjust the height of the camera in such a way that the position of the chinrest support is at the same height as the patient's chin. Then release the button.

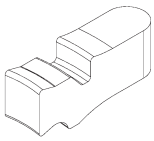


5.

5. Ask the patient to bite into the recesses in the bite block and to place his/her chin on the chinrest support. Ensure that the bite block is correctly centered on the incisors and that the occlusion is produced in the recess of the bite block.

NOTE The bite block must be protected by a plastic-coated cover.

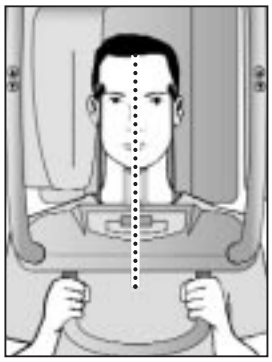
If the patient is edentulous, or if the standard bite block is not compatible with the dentition of the patient, you can replace it with the bite block for edentulous patients.
If this bite block is not satisfactory, we advise you to remove the bite block and ask the patient to bite on a cotton reel in order to slightly open his/her jaw.



NOTE The bite block for edentulous patients is not supplied with a protective plastic-coated cover. For this reason, ensure that the bite block is sterilized using cold sterilization techniques before using on another patient.

6. Move the button of the Frankfurt plane to the lower position in order to avoid directing the laser beam into the eyes. Turn on the laser beams by means of the "Activate Laser Beams" button on the control panel of the panoramic unit or on the graphic interface.
The laser beams can be turned on or off at any time by simply pressing the button. In any event, the beams are automatically turned off after a period of 60 seconds.

WARNING Laser Radiation. Do not stare directly into the beam. Class 2 laser product.

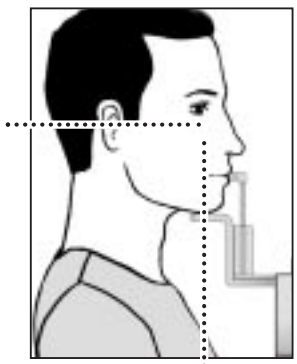


7.

7. Adjust the position of the patient's head in such a way that the sagittal-median plane of the face coincides with the median beam. The reference line is an imaginary line which passes through the center of the two incisors and the mid-nasal point between the two ocular orbits.

8. Adjust the button of the Frankfurt plane so that the light beam follows an imaginary line which passes below the orbit of the patient and level with the tragus. This adjustment can be made:

a. By means of the cursor located on the generator of the panoramic unit
a. And by adjusting the height of the unit in order to orientate the patient's head by rotation. The fixed point should be located level with the recesses in the bite block.



8. 9.

NOTE Check that the patient is still standing upright with his/her shoulders relaxed. His/her hands should be holding the handle without applying any force. It is important that the patient remains relaxed in order to prevent any movement while the tubehead is rotating and to lower the shoulders.

9. Ask the patient to smile, then check the alignment of the vertical beam with the upper canine of the patient.
If this is not the case (due to major prognathous or other deformities in the patient), the position of the patient must be adjusted in such a way that the set of incisors is in the section plane.
Then move the chinrest, using the central button, so that the beam coincides with the canine. Use the graduated scale as a reference. Do not exceed the graduated scale.
Check that the sagittal-median plane and the Frankfurt plane are still correctly adjusted.

10. Secure the side arms of the head clamp in order to immobilize the patient's head.

11. The patient is ready for acquisition of the X-ray image.
Ensure that the patient's shoulders are lowered and that his/her back is straight. Ask him/her to remain immobile and to swallow so that his/her tongue is in contact with the palate.

12. The image can now be acquired.
Make sure that you leave the room or that you move well away from the camera in accordance with current regulations.

Press the exposure button, holding it down until the image has been acquired. An audible beep and two yellow indicator lamps (one on the control panel and one on the graphic interface) indicate that X-rays are being emitted. A voice message reminds the patient to keep still.

In the event of a problem, you can interrupt the image acquisition process at any time by releasing the exposure button.

In the event of a technical problem, a prompt is displayed on the graphic interface and on the camera control panel. Make a note of the error code and refer to the section "Technical Problems".

13. When the image has been acquired, check the quality of the image obtained, then open the head clamp and release the patient.

WARNING When the "Reset Motion" button is pressed - the button is accessible from the control panel or from the graphic interface-the arm rotates once before returning to its initial position. Stand clear of the arc of rotation and ensure that the patient is immobile in the panoramic unit.
The unit can be reset even if the patient is still in position in the panoramic unit. However, it is essential to ensure that the patient does not move while the unit is rotating.

Pediatric panoramic program

Before acquiring an image of the child's mouth, you can rotate the unit without emitting X-rays, in order to reassure the child and explain to him/her how the device works.

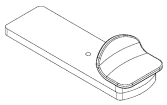
In this case, simply click on the icon "Rotation without X-rays" on the graphic interface.
To disable this function, simply click on this icon again. Your panoramic unit is now ready to acquire another image.

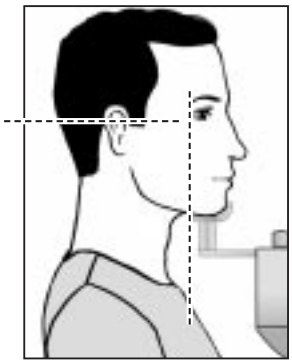
The procedure for positioning the patient is described below. This procedure must be rigidly observed.

Follow the same procedure as described in the section "Step-by-step instructions for producing a TROPHYPAN image". At point 5, click on the "child" icon to select the type of patient.

The procedure for positioning the patient (point 7) must be exactly the same as described in the Standard Panoramic program above.

Maxillary sinuses program





The procedure for positioning the patient is described below. This procedure must be rigidly observed.
Follow the same procedure as described in the section "Step-by-step instructions for producing a TROPHYPAN image". At point 5, click on the "sinus" icon to select the type of program.

The procedure for positioning the patient (point 7) is the same as the Standard Panoramic program described above, with the following minor differences:

- As the patient is being positioned in the panoramic unit, be sure to use a chinrest support that is compatible with the "Sinus" mode. Secure the support by rotating the adjusting button so that the "0v reference is aligned with the reference mark.

The procedure for adjusting the position of the patient in the section plane differs slightly from the panoramic procedure:

- Adjust the position of the patient's head so that the sagittal-median plane of the face coincides with the median beam.
- Use the cursor, located on the casing of the panoramic unit, to set the level of the Frankfurt plane. If it is not directed through the Frankfurt plan of the patient, the laser beam must remain parallel to the Frankfurt plane.
- Check that the canine section plane beam coincides with the outer corner of the eye. If necessary, rotate the adjustment button on the chinrest support is order to slightly reposition the patient's face.

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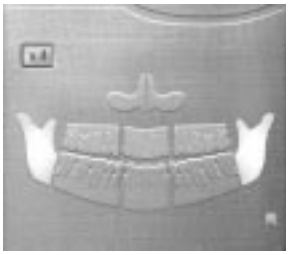
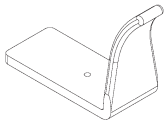
2-section lateral TMJs program



The procedure for positioning the patient is described below. This procedure must be rigidly observed.

Follow the same procedure as described in the section "Step-by-step instructions for producing a TROPHYPAN image". At point 5, click on one of the "TMJ" icons to select the type of program. The "2-View Lateral TMJs" program is selected.



At point 7, as the patient is being positioned in the panoramic unit, be sure to use the nasal support designed for the "TMJ" program. Secure the support by rotating the adjusting button so that the "0" reference is aligned with the reference mark.

a) Open the side arms of the head clamp.

b) Check that the "Ready" message is displayed on the control panel. If not, press the "Reset Motion" button on the control panel or from the graphic interface in order to reset the arm to its initial position.

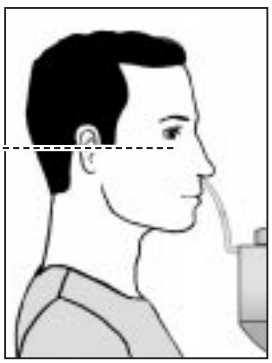
NOTE Ask the patient to remove any metallic object (spectacles, hearing aids, earrings, necklaces, etc.) which may adversely affect the quality of the X-ray image.
We recommend that the patient is wearing a protectrice lead-lined apron, unless other Radiation Protection Protocols apply locally.

c) Position the patient in the panoramic unit.

NOTE The patient must stand upright, with his/her hands on the lower handle and his/her feet slightly forward. This positioning is essential in order to release the nape of the neck of the patient and reduce the shadow of the column transferred to the image.

NOTE
The beam of the canine section plane is not used for positioning the patient for the 2-Section TMJ exposure program.

d) Adjust the height of the TROPHYPAN, using the buttons fitted to the vertical pillars. You can activate one (or both) switches by simply pressing them.
Then adjust the height of the unit in such a way that the nasal support is in contact with the patient's nose. Then release the button.



e) Adjust the position of the patient's head so that the sagittal-median plane of the face coincides with the median beam.

f) Use the cursor, located on the casing of the panoramic unit, to set the level of the Frankfurt plane.
If it is not directed through the Frankfurt plan of the patient, the laser beam must remain parallel to the Frankfurt plane.

g) Secure the side arms of the head clamp in order to immobilize the patient's head.

h) The patient is ready for acquisition of the X-ray image.
Ensure that the patient's shoulders are lowered and that his/her back is straight. Ask him/her to remain immobile and to swallow so that his/her tongue is in contact with the palate.

i) The image can now be acquired.
Make sure that you leave the room or that you move well away from the camera in accordance with current regulations.
Press the exposure button, holding it down until the image has been acquired. An audible beep and two yellow indicator lamps (one on the control panel and one on the graphic interface) indicate that X-rays are being emitted. A voice message reminds the patient to keep still.

In the event of a problem, you can interrupt the image acquisition process at any time by releasing the exposure button.

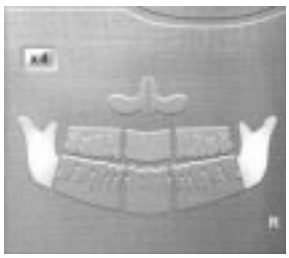
In the event of a technical problem, a prompt is displayed on the computer interface system and on the TROPHYPAN control panel. Make a note of the error code and refer to the section "Technical Problems".

j) When the image has been acquired, check the quality of the image obtained, then open the head clamp and release the patient.

WARNING When the "Reset Motion" button is pressed - the button is accessible from the control panel or from the graphic interface - the arm rotates once before returning to its initial position. Stand clear of the arc of rotation and ensure that the patient is immobile in the panoramic unit.
The unit can be reset even if the patient is still in position in the panoramic unit. However, it is essential to ensure that the patient does not move while the unit is rotating.

4-section lateral TMJs program

The procedure for positioning the patient is described below. This procedure must be rigidly observed.
Follow the same procedure as described in the section entitled "2-Section Lateral TMJs program".



As you select the program - after you have selected the TMJ program as explained above, using the "2-Section Lateral TMJs program" procedure - click on the "x4" icon which is displayed above the dental arch. The "TMJ 4 Lateral Views" program is now selected.
You can confirm this from the "Overview" window to the left of the graphic interface: an "x4" symbol is displayed in the top left corner of this window.

Then follow the instructions described in the "2-Section Lateral TMJs program" procedure.

NOTE The 4-section TMJs procedure is implemented in 2 stages. Acquisition of the image is interrupted after the initial rotation of the arm in order to allow the patient to change position (mouth open or mouth closed).

When the first image has been acquired, the audible warning signal is turned off. You can then release the exposure button. Approach the patient and then press the "**Reset Motion**" key on the control panel in order to return the arm to the starting position. Ensure that the patient remains immobile during this operation.
Ask the patient to open or close his/her mouth (changeover from mouth closed to mouth open or vice-versa). Use the laser beams to ensure that the patient is still positioned in the section plane.

The image can now be acquired.
Make sure that you leave the room or that you move well away from the unit in accordance with current regulations.
Press the exposure button to initiate acquisition of the second series of TMJ images.

Informations relative to dosimetry

Conforming to EURATOM 97/43 directive

CAUTION This table provides you with an estimation of the emitted dose, which allows to calculate the effective dose received by the patient for one image.

kV	mGy . cm² / mAs
60	0,424
61	0,442
62	0,459
63	0,477
64	0,495
65	0,512
66	0,531
67	0,549
68	0,567
69	0,586
70	0,604
71	0,623
72	0,642
73	0,661
74	0,680

kV	mGy . cm² / mAs
75	0,699
76	0,719
77	0,739
78	0,758
79	0,778
80	0,798
81	0,818
82	0,839
83	0,859
84	0,880
85	0,900
86	0,921
87	0,942
88	0,963
89	0,985
90	1,006

Dose measured at the exit of the primary collimator.
Dose precision: +/- 20 %.
Width of the primary slit: 0.5 mm
Height of the primary slit: 18.2 mm

CAUTION If your panoramic unit has a serial number prior to March 2003, the table mentioned above is not appropriate. Please contact your Trophy certified dealer to obtain the corresponding dose table.

Implementation

When the image has been acquired, your image is automatically displayed in your Trophy Windows imaging software. The radiological parameters used (for instance: 70 kV – 10 mA – 13.9 sec.) are displayed in the blue band at the top of the image. To calculate the dose emitted by the unit, refer to the table mentioned below to find out the coefficient corresponding to the kV value used to acquire the image. This value is expressed in mGy.cm²/mAs.

As an example, for 70 kV, the corresponding value is 0.604 mGy.cm²/mAs. Multiply this value by the mA and the time to get the emitted dose during the acquisition.

At 70 kV, 10 mA and 13.9 secondes, the emitted dose is:

0.604 x 10 x 13.9 = 84 mGy.cm²

SECTION 5

THE PRINCIPAL DIGITAL TOOLS IN THE TROPHY WINDOWS SOFTWARE PROGRAM

The TROPHYPAN toolbar

NOTE
For information about any buttons that are not detailed below, refer to the online Help function of the Trophy Windows software program.

The TROPHYPAN toolbar, shown opposite, is displayed when a TROPHYPAN image is active on the screen. It incorporates the following functions:

① **Contrast filter:** this tool is used to optimize contrast values. The filter is an additional aid to enhancing the clinical details contained in the image. However, it may have the effect of outlining amalgam fillings and crowns. It is therefore advisable to confirm the diagnosis with this tool deactivated in order to obtain a pure image which contains the complete clinical information.

② **Highlight:** this tool is used to enhance the contrast values on an area of interest which has been previously selected in the image. It has the effect of emphasizing details which are barely perceptible to the naked eye. This tool can be applied to pure or filtered images, in window display mode, in full screen display mode (image at a scale of 1:1) or in zoom display mode.

③ **Measurement:** this tool is used to make measurements on the image. It should be noted that the validity of a given measurement is dependent on correct positioning of the patient. In addition, a panoramic image, of necessity, incorporates enlargements which are not consistent over the entire image.

It is strongly recommended that the Measurement tool is calibrated (refer to the Trophy Windows Help function) using a ball of a known size in the area of interest in which the measurement is to made.

NOTE Calibration using a ball indicates the magnification factor. Once the calibration process has been completed, software-based compensation is only relevant in an area close to the ball since, by definition, the magnification factors are not consistent over the entire image. The measurements on the images should only be regarded as a general indication. It is recommended that a supplementary measuring method should be used, in accordance with accepted codes of practice.

Diagnostics image size

NOTE
The use of tools 1 and 2 and the display of the diagnostics image size is strongly recommended as an aid to diagnosis.

The image can also be viewed at its true size by double-clicking on the image (scale 1:1, one sensor pixel for each screen pixel). It is then possible to view all the details contained in the image.

For details of the other buttons, refer to the Trophy Windows online Help function.

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Display tips

The TROPHYPAN images are displayed in windows which can be moved across the screen with the aid of the mouse. Three types of display can be selected by clicking on different areas of the active window:

① These icons are located in the top right corner of the image window and can be used to change the display from full screen mode to window mode.

Full screen Window

② These icons, also located in the top right corner of the window, can be used either to reduce the image to the form of an icon - which is then displayed at the base of the screen and is restored by clicking on it - or to close the image.

Close Minimize

③ The image can be displayed at its actual size, i.e. one pixel of the image is represented by one pixel on the screen (scale 1:1).

Tips on combining TMJs

The procedure for converting 2-view images to 4-view images is as follows:
Two single TMJ images can be combined after they have been acquired, provided that both images are associated with the same patient and were acquired on the same date.
Then open the two images. Hold down the Ctrl button on the keyboard of the PC and click on each of the images. Then request a combination of the images via the Trophy Windows "File\Combination of TMJs" menu.

Printing the TROPHYPAN image

Images in TROPHYPAN Windows can be printed using any printer connected to the PC and recognized by Windows. The natural preference is for a black-and-white printer, either inkjet or thermal for optimal reproduction (some printers which are only equipped with one color cartridge reproduce gray scales with the aid of basic colors and, for this reason, the image quality is impaired).

NOTE Only large format black-and-white thermal printers are capable of producing film-quality printouts. Warning: In view of the diversity of printers and their configuration, the scale of the image is never guaranteed and it is therefore strongly recommended that measurements should not be made on the printed image.

Recording the TROPHYPAN image

NOTE
Also, refer to the online Help function of the Trophy Windows software program.

TROPHYPAN images can be saved. When you close the Imaging screen, TROPHYPAN Windows automatically checks any images that have not been saved and, for each one, asks whether it should be saved. The saved images are stored in the Patient Medical Record.
When the image is saved, it is possible to complete the comments associated with the images (the default comments being the exposure parameters).

NOTE The comments can be edited and amended by clicking on the image with the right mouse button.

WARNING
The complete information is only retained if the image is recorded in large format. Compression may result in a loss of clinical information.

It is strongly recommended that all the images should be saved in large format in order to maintain the integrity of the clinical information. Compressed (small format) images may be subject to irretrievable loss of information. The compressed format is generally used to forward a copy to a third party, either by e-mail or on a floppy disk.

Sharing TROPHYPAN images between different workstations

As soon as they have been saved in the patient's medical record, TROPHYPAN images can be analyzed on each of the declared workstations in the network. The Trophy Windows software program must be installed on all the consultation workstations in order to ensure that the relevant patient medical record can be opened and the images can be analyzed.

In this case, it is assumed that the information is stored on a common disk and that the access path to the database has been specified for each of the consultation workstations in the Trophy Windows Options (consult your installer).

SECTION 6

ADVICE ON SERVICING AND MAINTENANCE

Daily maintenance of your panoramic unit

Accessories	Servicing advice
Standard bite block	Cold sterilization before the next patient is X-rayed
Bite block for Edentulous patients	Cold sterilization before the next patient is X-rayed
Head support	Before the next patient is X-rayed, the head support and chinrest must be disinfected with medical-grade alcohol with an alcohol content in excess of 76%
Chinrest (panoramic, sinus and TMJ)	
All components which come into contact with the patient and the operator	Before the next patient is X-rayed, these components must be disinfected with medical-grade alcohol with an alcohol content in excess of 76%
Outer covers of the panoramic unit	Wipe the TROPHYPAN with a dry cloth and the end of each day's operation

WARNING Ensure that the TROPHYPAN unit is turned off before cleaning. Do not allow liquid to penetrate inside the unit. Do not use detergents or solvents to clean the covers of the panoramic unit.

Monthly maintenance

Accessories	Servicing advice
Outer covers of the panoramic unit	Wipe the TROPHYPAN with a soft dry cloth

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SECTION 7

ERROR DIAGNOSTICS

Information of the information messages

Code	Message	Action
11	X-ray tube cooling	Cooling in progress. Wait until the counter has reached zero.
12	Thermal security	Cooling in progress. Wait until the counter has reached zero.
13	Release handswitch	Release the exposure button. Reinitialize the movement and restart the exposure.
I 6	Wrong arm position	The movement is not in its starting position, so the exposure button is inactive. Reinitialize the movement of the camera unit.
I 15	Interface inactive	Check that TROPHYPAN is actually turned on. Check that only the TROPHYPAN graphic interface is displayed on the screen, to the exclusion of any other menu.

Diagnosis of possible technical problems

Error messages identified by the unit

In the event of a malfunction or an incorrect action by the operator, a message - accompanied by an error code - is simultaneously displayed on your control panel and on your graphic interface. A warning is also issued in the form of a voice message.

Please refer to the following table and follow the relevant instructions.

If the malfunction persists or the type of fault is not described, please contact an approved Trophy dealer.

Code	Message	Action
E 1	"Handswitch was was released before the end of exposure"	The X-ray exposure button has been released prematurely. Restart acquisition of the image if it is not satisfactory.
E 2	"Mains power failure detected"	Acknowledge the error and restart acquisition of the image. If the problem persists, check the electrical installation of the panoramic unit.
E 3	"kV measurement problem"	Acknowledge the error and restart acquisition of the image. If the problem persists, call a qualified technician.
E 4	"kV measurement problem"	Acknowledge the error and restart acquisition of the image. If the problem persists, call a qualified technician.

Code	Message	Action
E 6	"Problem inside generator"	Acknowledge the error and restart acquisition of the image. If the problem persists, call a qualified technician.
E 7	"mA measurement problem"	Acknowledge the error and restart acquisition of the image. If the problem persists, call a qualified technician.
E 8	"mA measurement problem"	Acknowledge the error and restart acquisition of the image. If the problem persists, call a qualified technician.
E 9	"Filament heating problem"	Acknowledge the error and restart acquisition of the image. If the problem persists, call a qualified technician.
E 10	"Filament heating problem"	Acknowledge the error and restart acquisition of the image. If the problem persists, call a qualified technician.
E 11	"Safety device activated on high voltage capacitors"	Acknowledge the error and restart acquisition of the image. If the problem persists, call a qualified technician.
E 12	"Problem with switch"	Acknowledge the error and restart acquisition of the image. If the problem persists, call a qualified technician.
E 13	"Travel measurement problem"	Acknowledge the error and restart acquisition of the image. If the problem persists, call a qualified technician.
E 14	"Travel measurement reproducibility problem"	Acknowledge the error and restart acquisition of the image. If the problem persists, call a qualified technician.
E 15	"Movement too long"	Acknowledge the error and restart acquisition of the image. If the problem persists, call a qualified technician.
E 16	"Movement too short"	Acknowledge the error and restart acquisition of the image. If the problem persists, call a qualified technician.
E 17	"Movement measurement reproducibility problem"	Acknowledge the error and restart acquisition of the image. If the problem persists, call a qualified technician.
E 22	"Capture stopped. Interface has been masked"	The graphic interface of the panoramic unit was closed during acquisition of the image. The graphic interfacemust always be active and it should be placed in the foreground before an image can be acquired.
E 23	"No movement detected"	Acknowledge the error. If the problem persists, call a qualified technician.
E 24	"Heating voltage self-calibration timeout"	Acknowledge the error. If the problem persists, call a qualified technician.
E 25	"Heating voltage lower limit reached"	Acknowledge the error. If the problem persists, call a qualified technician.

Code	Message	Action
E 26	"Heating voltage higher limit reached"	Acknowledge the error. If the problem persists, call a qualified technician.
E 50	"Program evolution problem"	Acknowledge the error. If the problem persists, call a qualified technician.
E 51	"Serial Eeprom read error"	Acknowledge the error. If the problem persists, call a qualified technician.
E 52	"Communication problem with console"	Acknowledge the error. If the problem persists, call a qualified technician.
E 53	"Backup battery out of service"	The operating life of the clock battery in the panoramic unit is approximately 10 years. Call a qualified technician to replace the battery.
E 54	"Inconsistency in calibration parameters"	Choose the 'Restart' option in the Error window. If the problem persists, choose 'Restore' to retrieve the result of the previous save operation. If this fails to cure the problem, call a qualified technician.
E 55	"Error in stored parameters"	Choose the 'Restart' option in the Error window. If the problem persists, choose 'Restore' to retrieve the result of the previous save operation. If this fails to cure the problem, call a qualified technician.
E 56	"Error in manufacturing parameters"	Choose the 'Restart' option in the Error window. If the problem persists, choose 'Restore' to retrieve the result of the previous save operation. If this fails to cure the problem, call a qualified technician.
E 57	"Error in user preferences"	Choose the 'Restart' option in the Error window. If the problem persists, choose 'Restore' to retrieve the result of the previous save operation. If this fails to cure the problem, call a qualified technician.
E 58	"Exposure context error"	Acknowledge the error and check the selections before reacquiring an image. If the problem persists, call a qualified technician.
E 59	"Program evolution error"	Acknowledge the error. If the problem persists, call a qualified technician.
E 60	"Hardware error detected"	Acknowledge the error. If the problem persists, call a qualified technician.

Rapid troubleshooting

The following information can be used without specialist knowledge to rectify the majority of obvious malfunctions that may be encountered during use. The information is based on the assumption that the system has been correctly installed.

Try to rectify the malfunction by following the instructions given below.

If the malfunction persists or the of fault is not described, please contact an approved Trophy dealer.

Symptom	Cause and remedy
The TROPHYPAN graphic interface is not displayed after clicking on the acquisition icon in Trophy Windows	1- Check that the panoramic unit has been switched on. 2- Ensure that all the connectors between the panoramic unit and the PC are in place. 3- Check that the driver for the PCI card has been installed.
There is no movement when the X-ray exposure button is pressed.	1- The 'Ready' message is not displayed on the control screen. Click on the 'Reset Motion' button to obtain the 'Ready' message. 2- The panoramic unit is in cooling mode. Wait until the counter has returned to zero. 3- The panoramic unit is in thermal overload mode. Wait until the 'Generator Ready' icon changes back to green.
No image appears on the screen after the X-rays have been activated.	1- Ensure that the X-ray emissions have not been deactivated. 2- Check the consistency of the firing parameters (type of patient, kV and mA values) with the actual morphology of the patient.
The image contrast is satisfactory but there are vertical faults (darker strips).	1- During rotation, the patient's shoulders may have impeded the movement of the generator, reducing its speed and resulting over-exposure of the image in certain areas. Ensure that the patient is correctly positioned.
The image is too dark	1- Reduce the dose of X-rays. Begin by reducing the kV values, followed by the mA values.
The image is too light	1- Increase the dose of X-rays. Begin by increasing the kV values, followed by the mA values.

SECTION 8

TECHNICAL SPECIFICATIONS

General technical specifications

Product identification	Digital Panoramic Radiology Unit, controlled from a PC interface. Face-to-face positioning
Digital sensor	CCD + optical fiber sensor
Dimensions of the matrix	2,500 x 1,244 pixels
Gray scales	4,096 – 12 bits
High tension generator	140 kHz (max.) 60 - 90 kV 2 – 15 mA
Line voltage	230-240 V / 50 Hz , 230-240 V / 60 Hz 110 - 130 V / 60 Hz
Focal spot of tube	0.5 mm (IEC 336)
Total filtration	> 2.5 mm eq. Al
Anode voltage	90 kV max.
Cathode current	15 mA max.
Imaging procedures	Panoramic Segmented panoramic Maxillary sinus Lateral TMJ, 2 sections Lateral TMJ, 4 sections
Period of exposure	Adult panoramic: 13.9 sec. Pediatric panoramic: 13.2 sec. Maxillary sinus: 10.7 sec. Lateral TMJ, 2 sections: 4.6 sec. Lateral TMJ, 4 sections: 9.2 sec.
Exposure mode	2 programs (adult and child) 3 sizes (adjustable by the user)
Magnification	x 1.27
Dimensions (standard installation) **(with base plate)**	888 (L) x 1180 (D) x 2315 (H) mm* 888 (L) x 1180 (D) x 2330 (H) mm
Weight	120 kg

*** On request, the height of the column can be adjusted at the factory**

ENGLISH

International standards

Electromagnetic compatibility

With regard to EMC, this product complies with European Directive 89/336/CEE.
This product complies with European Standard EN 60601-1-2 (1993).
Its classification is Group I, Class B.

Conforming to IEC Standards 601.2.7 (1998) and 601-1 (1995)

MANUFACTURER:
TROPHY
4, rue F. Pelloutier, Croissy-Beaubourg
77437 Marne la Vallée Cedex 2, France

MODEL:
TROPHYPAN, radiographic dental diagnostic unit, IEC 601.2.7 (1998),
Class 1, Type B, Intermittent Operation,
with protection against X-rays complying with IEC 601.1.3 (1994)

AMBIENT OPERATING CONDITIONS

Temperatures	5 ~35 °C
Relative humidity	30 ~ 85%
Atmospheric pressure	700 ~ 1060 hpa

STORAGE CONDITIONS

Temperature	-10 ~ 60 °C
Relative humidity	10 ~ 95%
Atmospheric pressure	700 ~ 1060 hpa

TRANSPORT CONDITIONS

Temperature	-10 ~ 60 °C
Relative humidity	10 ~ 95%
Atmospheric pressure	700 ~ 1060 hpa

Type of electrical power supply:	**230 - 240 V (± 10%)** **50/60 Hz, single-phase**	**110 -130 V (± 10%)** **60 Hz, single-phase**
Apparent resistance of the power supply circuit	0.5 Ω (max.)	0.12 Ω (max.)
Permanent absorbed current	0.45 A	0.9 A
Current absorbed during the X-rays emission	9.5 A	17 A
Max. absorbed power	2.2 kVA	1.9 kVA
Protection for the power supply system	By shutter release at a max. current of 16 A and a differential current of 30 mA	By shutter release at a max. current of 20 A and a differential current of 30 mA
Nominal high tension	90 kV	90 kV
Maximum corresponding tube current	10 mA	10 mA
Nominal tube current	15 mA	15 mA
Maximum corresponding high tension	80 kV	68 kV
Tube current/voltage combination for maximum output power	80 kV, 15 mA	85 kV, 12 mA
Nominal power for an exposure time of 0.1 s.	at 80 kV, 15 mA: 1200 W	at 85 kV, 12 mA: 1020 W

Utilization rate in continuous mode (for example: one exposure – 85 kV, 5 mA – 13.9 sec every 3 minutes)	33 W.
Utilization rate in intermittent mode (for example: one exposure – 80 kV, 15 mA – 13.9 sec every 3 minutes)	93 W.

Selection of the load parameters:	
kV (in increments of 1 kV)	From 60 to 90 kV
mA (in increments of 25%)	From 2 to 15 mA

Cooling conditions:	
Maximum dissipation of heat from the X-ray radiogenic assembly into the ambient air (for a utilization rate in continuous mode):	70 W

Details of the load parameters:	
High tension:	kV ± 10%
Current in the tube:	mA ± 20%
Exposure time:	seconds ± (10% + 1ms)

Measurement conditions:	
KV	Indirect on the peak kilovoltmeter
MA	Direct measurement in the circuit using an oscilloscope
Exposure time:	Measurement at 75% of the kV values

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Characteristics of the X-ray radiogenic assembly

Conforming to IEC Standard 601.1.3 (1994)

IEC Standard 601.1.3 (1994)	Compliant
Nominal value of the inherent filtration at 70 kV	2.8 mm (0.11'') eq. Al
Nominal value of the supplementary filtration at 70 kV	Not applicable
Nominal value of the total filtration at 70 kV	2.8 mm (0.11'') eq. Al
Filtration value for the enclosure of the radiogenic unit (at 100 kV)	0.2 mm (0.08") eq Al
Filtration value for the enclosure of the image receiver unit (at 100 kV)	0.2 mm (0.08") eq Al
Filtration value for the sensor case	0.8 mm (0.31") Al
Value for the arms of the head clamp (at 100 kV)	1.0 mm (0.039") eq Al
Distance between the focal spot and the sensor	522 mm (20.55 ".)
Location of the reference axis	Refer to the diagram below
Size of the beam at the sensor	5 x 126 mm
Radiation leakage after one hour's operation *(maximum utilization rate of 93 W, i.e. 90 kV , 10 mA , 13.9 sec. every2 minutes 15 sec.)*	< 1 mGy

Conforming to IEC Standard 601.2.28 (1993)

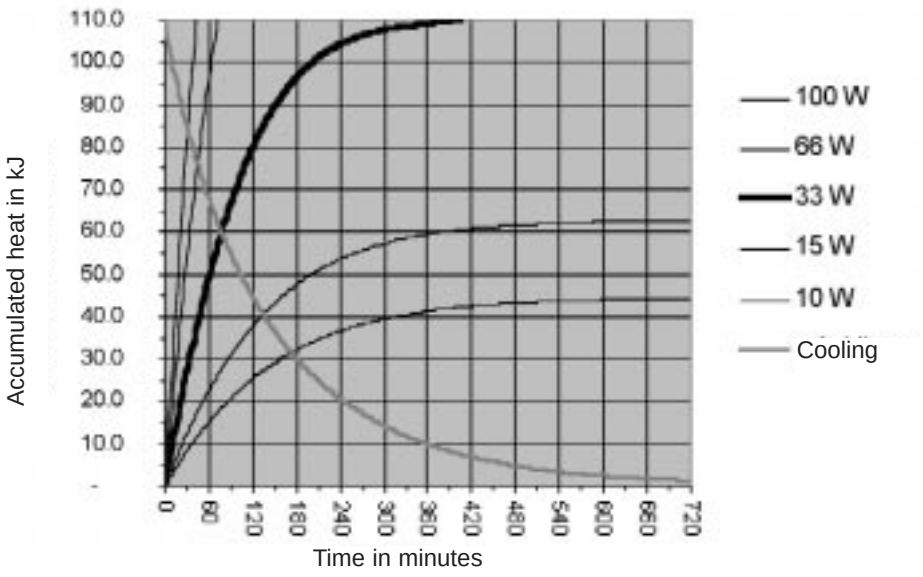
The radiogenic unit comprises:

- a transformer and a radiogenic tube, together with their associated electronic components immersed in oil.
- an aluminum filter which enhances the quality of the beam and reduces the dose received by the patient.
- a unit which limits the size of the beam at the image receiver unit.
- a thermal cutout which trips at an operating temperature of 65 °C ± 5 °C.

• Characteristics of the radiogenic unit

IEC Standard 601.2.28 (1993)	Compliant
Manufacturer	Trophy
Degree of protection against electric shock	Class I
Degree of protection of the parts applied to the leakage current from the patient	Type B
Maximum accumulated heat	110 kJ
Maximum continuous heat dissipation	33 W.
Nominal value of the focal spot (IEC 336/192)	0.5 mm
Tolerances on the position of the focal spot	+/- 2.5 mm
Weight	8.2 kg
Dimensions	235 x 245 x 120 mm

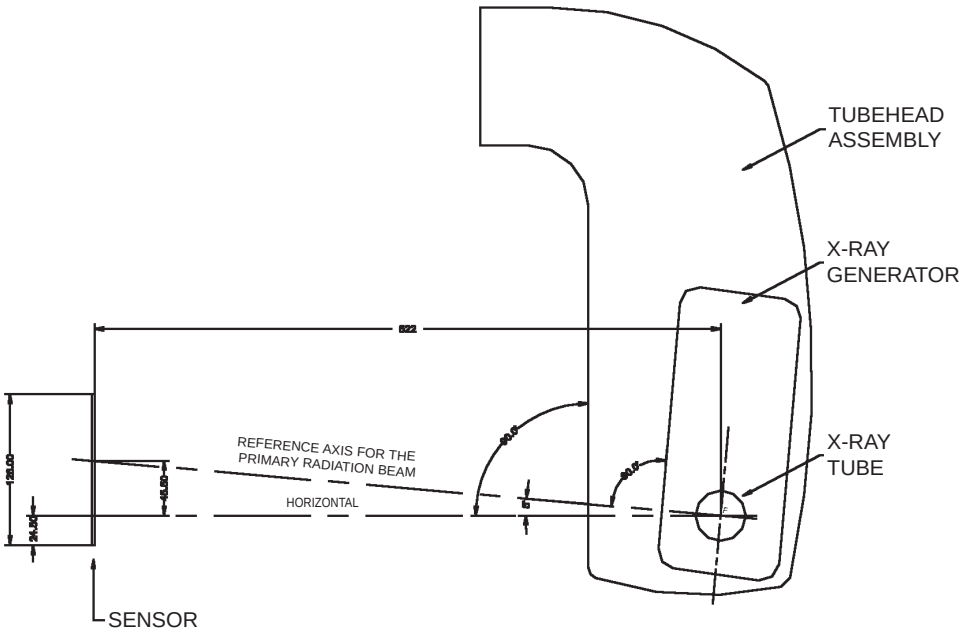
• Heating and cooling curves:



• **Beam limitation unit:**

Manufacturer	Trophy
Type	Rigidly mounted unit with fixed window dimensions, not removable dand integrated x-ray generator
Maximum symmetrical field of radiation 5 mm to 126 mm at a distance of 522 mm from the focal point	Complies with IEC Standard 806 (1994)

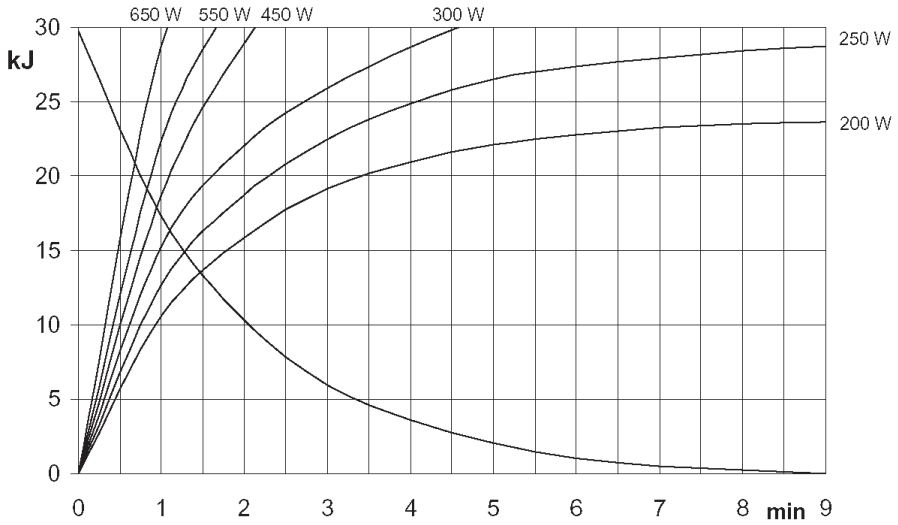
• **Position of the reference axis:**



• Characteristics of the X-ray tube:

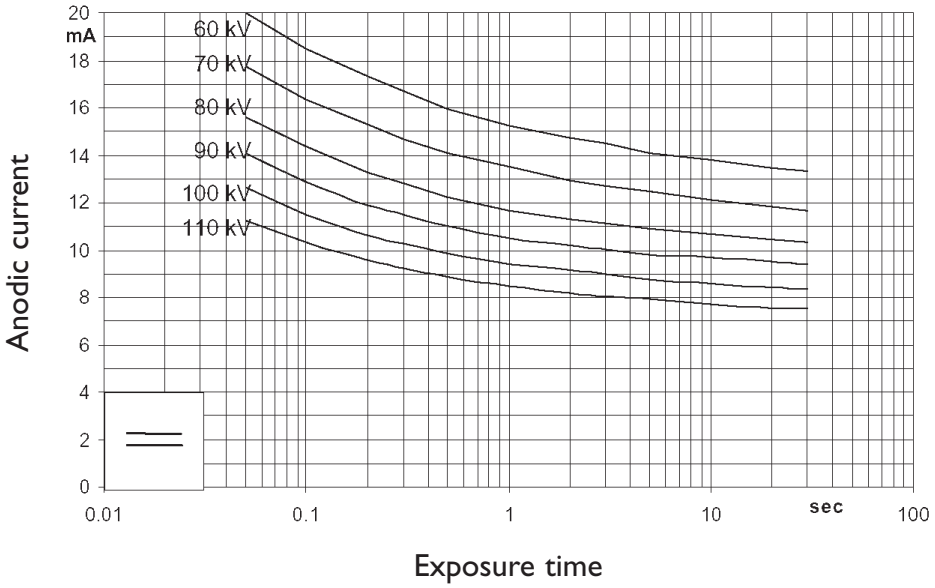
Manufacturer's name	CEI
Type	OPX 105
Nominal high tension	90 kV
Nominal anodic power	810 W
Maximum amount of heat accumulated in the anode	30 kJ
Nominal focusing value (IEC 336/1982)	0.5 mm (0.020'')
Collector electrode materials	Tungsten
Angle of the collector electrode	5°
Inherent filtration	0.5 mm (0.20 ") eq. Al

• Heating and cooling curves:

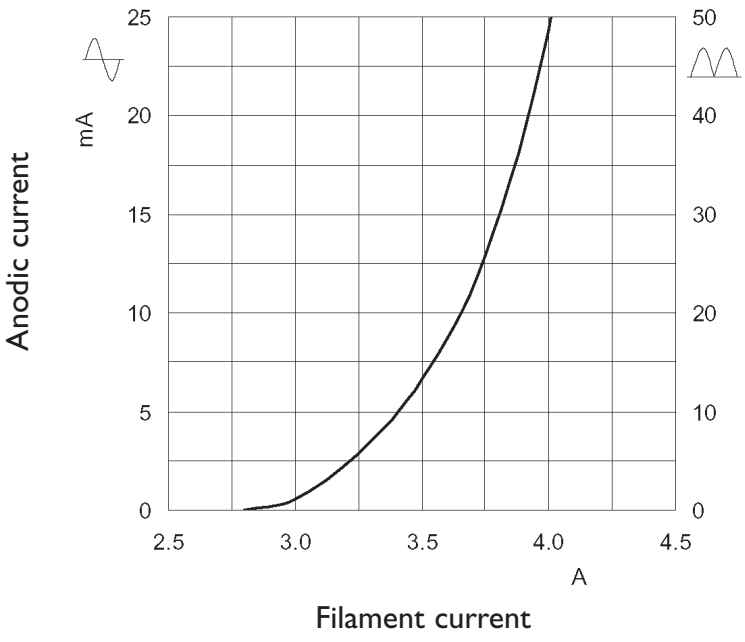


ENGLISH

• **Load alignment chart:**

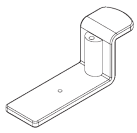
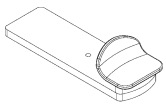
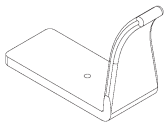
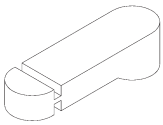
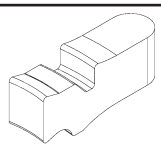


• **Characteristics of emissions from the filament:**



SECTION 9

REPLACEMENT PARTS

Product	Code	Description
	JR 265	Panoramic chinrest
	JR 263	Chinrest for the Maxillary Sinuses program
	JR 264	Nasal support for the TMJ program
	HY 048	Standard bite block
	HT 182	Bite block for 'Edentulous patients'
	FC 020	Bite block mounting
	BD 103	Plastic-coated protective covers (box of 500 items)

SECTION 10

X-RAY PROCEDURES FOR CEPHALOMETRIC IMAGES

Step-By-Step Instructions for acquiring a TROPHYPAN C Image

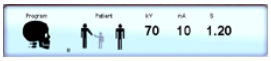
1. Start Trophy Windows and open (or create) the medical record for the patient concerned.

2. Access the Image Processing Module.

3. Click on the TROPHYPAN C acquisition icon to open the graphic interface.

4. Check that the "Ready" message is displayed in the System Status window. If it is not displayed, click on the "Motion Reset" button.

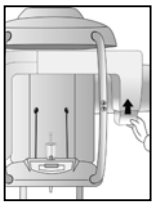
5. Choose the program and the patient type then, if necessary, adjust the kilovolt, milliampere and time values.



6. In the overview window, check that the selected parameters conform to the examination you wish to perform.

7. Access to the unit.

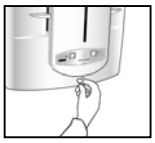
8. If the display informs you that the arm is in the wrong position, press on the "Reset" button on the control panel. The arm will automatically rotate and stop in the cephalometric position.



9. To block the arm, release the sensor by hand and adjust the lock pin located at the top to the arm lock block.

9.

10. According to the acquisition you want to make, select the proper collimator (LA or AP/PA)



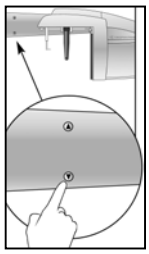
11. Select the position of the cephalometric sensor (LA or AP/PA).

10.

12. Adjust the height of the unit, using the buttons fitted to the vertical handles or on the cephalometric attachment. Then adjust the height of the unit in such a way that the position of the ear rods is at the same height as the patient's auditory meatuses.

13. Position the patient in the unit, rigorously observing the instructions specified in the "Patient Positioning" section of this Guide (cf. next pages). These instructions vary according to the selected program.

11.

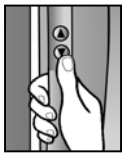


14. After positioning, move the unit slightly upward to straighten the patient's back.

15. The patient is ready for the acquisition of the X-ray image. Ask the patient to remain motionless and to swallow so that his/her tongue is in contact with the palate.

16. The image can now be acquired.

Make sure that you leave the room or that you move well away from the unit in accordance with current regulations.
Press the exposure button. An audible beep and two yellow indicator lamps (one on the control panel) and one on the graphic interface) indicate that X-rays are emitted.



In the event of a problem, you can interrupt the image acquisition process at any time by releasing the exposure button.

In the event of a technical problem, a prompt message id displayed on the graphic interface and on the unit control panel. Make a note of the error code and refer to the section "Technical Problems".

17. The image is displayed in a fraction of seconds in the Preview Window.

18. When the image has been acquired, check the quality of the image obtained (positioning…).

19. Open the ear rods and release the patient.

20. Analyse the image making use of the Trophy Windows image processing tools.

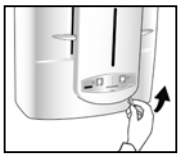
Procedures for positioning the patient according to the selected cephalometric program

Lateral cephalometric program

Follow the same procedure as described in the section “Step-by-step instructions for acquiring a TROPHYPAN C image”. At point 5, click on the “Lateral” icon to select the program.

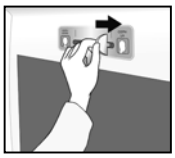
The procedure for preparing the unit (point 10 and 11) and positioning the patient (point 13) is specific. It is described below and must be rigidly observed.

Once this positioning procedure has been implemented, go back to the “Step-by-Step Instructions” at point 14 and finalize the procedure.



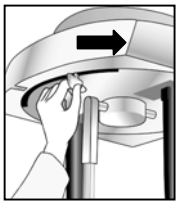
1. Select the lateral collimator on the tube head

2. Position the cephalometric sensor on the lateral position



3. If necessary, rotate the head rod by holding the button and fully open both ear rods.

4. Pull the upper part of the nasion towards the operator and position it in vertical position.



5. Adjust the height of the unit using the buttons located on the cephalometric attachment or on the vertical handles.

6. Ask the patient to stand up with his backbone straight.

7. Adjust the unit upward and downward again and adjust the position of the ear rods at the patient auditory meatuses.

8. Introduce first one ear rod into one’ patient’s auditory meatus and turn carefully the knob to close the ear rods and fix the second rod.

WARNING The patient has to remain straight in the unit.

9. Press the laser beam button on the control panel and adjust the Frankfurt plane of the patient by moving its head carefully.

10. Secure patient’s position.

11. Tilt the nasion pad down.

12. Adjust the height to the patient’s nasion and push carefully the upper part of the nasion towards the patient.

English

Frontal Cephalometric Program (AP/PA)

Follow the same procedure as described in the section “Step-by-step instructions for acquiring a TROPHYPAN C image”. At point 5, click on the “Antero-posterior” or “Postero-anterior” icon to select the type of program.

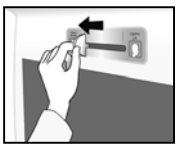
The procedure for preparing the unit (point 10 and 11) and positioning the patient (point 13) is specific. It is described below and must be rigidly observed.

Once this positioning procedure has been implemented, go back to the “Step-by-Step Instructions” at point 14 and finish the procedure.

1. Select the AP/PA collimator on the tube head

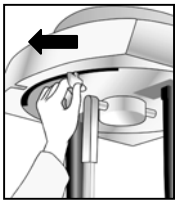
2. Position the cephalometric sensor on the AP/PA position

3. Rotate the ear rods by holding the button and fully open both ear rods.



4. Pull the upper part of the nasion towards the operator and rotate to the horizontal position. (The nasion is not used for this type of program)

5. Place the patient in the ear rods.



WARNING The patient has to remain straight in the unit.

The procedure for positioning the patient (from point 6) is the same as the Lateral Cephalometric Program described above, with the following minor differences:

- The frontal program requires to move the ear rods to position them in a symmetric position with the sensor. As a consequence, you have to rotate the ear rods to have them parallel to the sensor.
- The patient has to be placed in the unit either facing the generator (AP positioning) or facing the sensor (PA positioning).
- The Frankfurt laser beam does not need to be switch on for this program

Oblique cephalometric program

Follow the same procedure as described in the section "Step-by-step instructions for acquiring a TROPHYPAN C image".

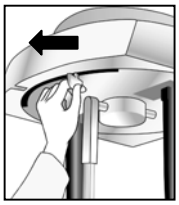
At point 5, click on the "Oblique" icon to select the type of program.

Click then on the small arrows for the degree display This selection allows you to determine the degree of angulation of the ear rods. This selection is only informative. It will send automatically the information in the comments of the image to be taken. The information will be as a consequence recorded in the Imaging Software.

CAUTION This selection is independent and is purely informative. It will not automatically set the position of the ear rods. The operator has then to adjust manually the position of the ear rods. The coherence of both settings on the interface and of the ear rods' position is under the responsibility of the operator.

The procedure for preparing the unit (point 10 and 11) and positioning the patient (point 13) is specific. It is described below and must be rigidly observed.

Once this positioning procedure has been implemented, go back to the "Step-by-Step Instructions" at point 13 and finalize the procedure.



1. Select the AP/PA collimator on the tube head
2. Position the cephalometric sensor on the AP/PA position
3. If necessary, rotate the head rod by holding the button and fully open both ear rods.
4. Pull the upper part of the nasion towards the operator and rotate to the horizontal position. (The nasion is not used for this type of program).
5. Place the patient in the ear rods.

WARNING The patient has to remain straight in the unit.

The procedure for positioning the patient (from point 6) is the same as the Lateral Cephalometric Program described above, with the following minor differences:

- The frontal program requires to move the ear rods to position them in a symmetric position with the sensor. As a consequence, you have to rotate the ear rods to have them parallel to the sensor.
- The patient has to be placed in the unit either facing the generator (AP positioning) or facing the sensor (PA positioning).
- The Frankfurt laser beam does not need to be switched on for this program

English

Submento-vertex program

Follow the same procedure as described in the section “Step-by-step instructions for acquiring a TROPHYPAN C image”. At point 5, click on the “submento-vertex” icon to select the type of program.

The procedure for preparing the unit (point 10 and 11) and positioning the patient (point 13) is specific. It is described below and must be rigidly observed.

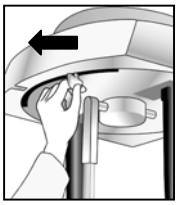
Once this positioning procedure has been implemented, go back to the “Step-by-Step Instructions” at point 13 and finalize the procedure.

1. Select the AP/PA collimator on the tube head

2. Position the cephalometric sensor on the AP/PA position

3. If necessary, rotate the head rod by holding the button and fully open both ear rods.

4. Pull the upper part of the nasion towards the operator and rotate to the horizontal position. (The nasion is not used for this type of program).



5. Place the patient in the ear rods.

Ask your patient to lean his head backwards.

NOTE To help the patient to keep this position, it is recommended to sit the patient on a chair or a stool . It will provide him a reference mark in the space and will help him staying stable.

The procedure for positioning the patient (from point 6) is the same as the Lateral Cephalometric Program described above, with the following minor differences:

- The frontal program requires to move the ear rods to position them in a symmetric position with the sensor. As a consequence, you have to rotate the ear rods to have them parallel to the sensor.
- The patient has to be placed in the unit either facing the generator (AP positioning)
- The Frankfurt laser beam does not need to be switched on for this program

Carpus program

Follow the same procedure as described in the section “Step-by-step instructions for acquiring a TROPHYPAN C image”. At point 5, click on the “carpus” icon to select the type of program.

The procedure for preparing the unit (point 10 and 11) and positioning the patient (point 13) is specific. It is described below and must be rigidly observed.

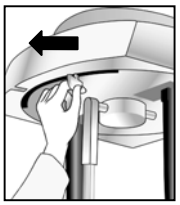
Once this positioning procedure has been implemented, go back to the “Step-by-Step Instructions” at point 13 and finalize the procedure.

1. Select the AP/PA collimator on the tube head

2. Position the cephalometric sensor on the AP/PA position

3. Rotate the head rod by holding the button and fully open both ear rods.

4. Pull the upper part of the nasion towards the operator and rotate to the horizontal position.



5. Ask the patient to put his hand on the cephalometric sensor. The hand has to be centered on the AP/PA surface.

English

Parameters' selection

The cephalometric exposure parameters are preprogrammed on the basis of the information supplied in the preceding functional blocks, the Program and Patient selection.
You will find below the tables of the preprogrammed parameters:

Lateral cephalometric program:

Morphology	Small			Medium			Large		
Parameters	**kV**	**mA**	**Time**	**kV**	**mA**	**Time**	**kV**	**mA**	**Time**
Child	73	12	0.8	75	12	0.8	77	12	0.8
Adult	76	12	1.0	78	12	1.0	80	12	1.0

Frontal cephalometric program:

Morphology	Small			Medium			Large		
Parameters	**kV**	**mA**	**Time**	**kV**	**mA**	**Time**	**kV**	**mA**	**Time**
Child	76	12	1.25	78	12	1.25	80	12	1.25
Adult	80	12	1.6	82	12	1.6	85	12	1.6

Oblique program:

Morphology	Small			Medium			Large		
Parameters	**kV**	**mA**	**Time**	**kV**	**mA**	**Time**	**kV**	**mA**	**Time**
Child	76	12	1.25	78	12	1.25	80	12	1.25
Adult	80	12	1.6	82	12	1.6	85	12	1.6

Submento-vertex program:

Morphology	Small			Medium			Large		
Parameters	**kV**	**mA**	**Time**	**kV**	**mA**	**Time**	**kV**	**mA**	**Time**
Child	76	12	1.25	78	12	1.25	80	12	1.25
Adult	80	12	1.6	82	12	1.6	85	12	1.6

Carpus program:

Morphology	Small			Medium			Large		
Parameters	**kV**	**mA**	**Time**	**kV**	**mA**	**Time**	**kV**	**mA**	**Time**
Child	60	15	0.32	62	15	0.32	63	15	0.32
Adult	64	15	0.4	64	15	0.4	66	15	0.4

These parameters can be modified independently at any time by the User by accessing the "Parameters" functional block in the graphic interface.

ENGLISH

Kodak8000 Installation

Congratulations on your purchase of a Trophy radiography system. Thank you for your confidence in our products and we will do all in our power to ensure your complete satisfaction.

You now have the Installation Manual for the TROPHYPAN, the digital extra-oral X-ray unit. We recommend that you thoroughly familiarize yourself with this Manual in order to make the most effective use of your system.

The information contained in this Manual may be subject to modification without notice, justification or notification to the persons concerned.

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The RVG technology is the subject of an international patent registered by Trophy Radiologie.

This document was originally written in French.

Revision date: 04/2003

TROPHYPAN complies with Directive 93/42/CEE relating to medical device.

CE 0459

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Notes for the User

X-rays are not innocuous and can be dangerous if not used properly. Therefore, the instructions and warnings contained in this Manual must be carefully followed.

As a manufacturer of radiology units which conform to the most stringent radiological protection standards in force throughout the world, Trophy's know-how guarantees the maximum degree of protection against radiation hazards.

Nonetheless, you are handling a radiology unit which is specially designed to emit a dose of x-rays in order to carry out a medical diagnosis with the aid of a Trophy digital imaging system (exclusive patent).

The room in which your radiology unit is to be installed must comply with all official regulations applicable to protection against radiation.

Your dealer will be pleased to assist with the initial use of your radiology unit and will supply any relevant information you may require.

The "WARNING" and "IONIZING RADIATION" symbols signify: "WARNING: IONIZING RADIATION".

To install, operate and service the unit, follow the instructions contained in this Manual.

Warnings and safety instructions

CAUTION Laser radiation. Do not look into the beam.
Class 2 laser product
This unit emits laser radiation.
For maximum safety, advise the patient not to look at the beam.
Before illuminating the beams, lower the Frankfurt plane beam to the lowest level.
While making adjustments, ensure that the beam is not directed into the patient's eyes.

DANGER This is an electrical unit. Do not expose it to water spray.
Such action may cause an electric shock or a malfunction of the unit.

WARNING The user is responsible for the operation and maintenance of this unit.
This unit must only be operated by legally qualified persons.
The cover of the unit must not be opened by the operator.
When necessary, inspection and maintenance operations should only be carried out by an approved Trophy technician.

WARNING This unit must be installed in x-ray room which complies with current installation standards.
From this location, visual or audio communication must be maintained with the patient, together with access to the control interface during exposure.

WARNING The TROPHYPAN unit has been designed to comply with European and international medical standards. In order to ensure conformity, the PCI interface board must be installed in a computer configuration which conforms to IEC 950 Standard.
The PC and the peripheral equipment connected to it must not be located in the immediate vicinity of the patient, thus at least 1.5 m from the panoramic unit.
For details of the data processing system (PC and screen), refer to the installation manuals for your computer. Sufficient clear space must be left around the CPU in order to ensure that it is properly ventilated.
In order to obtain maximum image quality and visual comfort, the screen should be positioned so as to avoid direct light reflections (internal or external lighting).

WARNING Do not operate the unit if there is the threat of an earthquake.
Following an earthquake, ensure that the unit is operating satisfactorily before using it again.
Failure to observe this precaution may expose patients to hazards.

WARNING X-ray equipment can be hazardous to patients and the operator if the exposure safety factors and operating instructions are not observed.

WARNING Do not place objects within the field of operation of the unit.

WARNING Ensure that the patient and the operator are wearing aprons to protect them against X-rays.
Ensure that any parts of the unit which may come into contact with the patient and the operator have been disinfected after each patient has been exposed to X-rays.
While adjusting the height of the unit, the operator must ensure that the patient is kept clear of the mechanism.
When the unit is not in use, ensure that the ON/OFF switch is set to OFF (O).
If the unit develops a fault, switch it off (O) and display a notice 'Unserviceable'.

WARNING To dispose of the unit and/or its components, contact our representatives or our Company.

WARNING Do not rotate the arm unit by hand as this may damage the unit.

WARNING The operator must ask the patient to refrain from moving during the entire period of exposure.

WARNING The operator must ask the patient to refrain from moving until the ARM UNIT has stopped moving and throughout the RESET movement.

SECTION 1

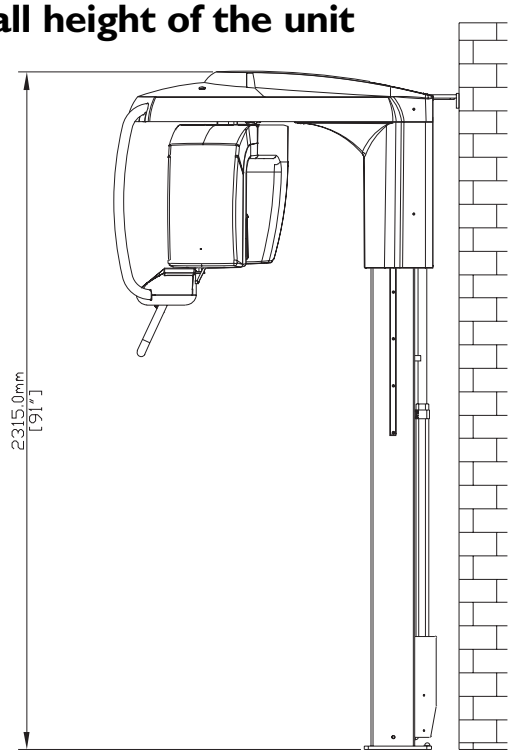
DIMENSIONAL DIAGRAMS

General arrangement views

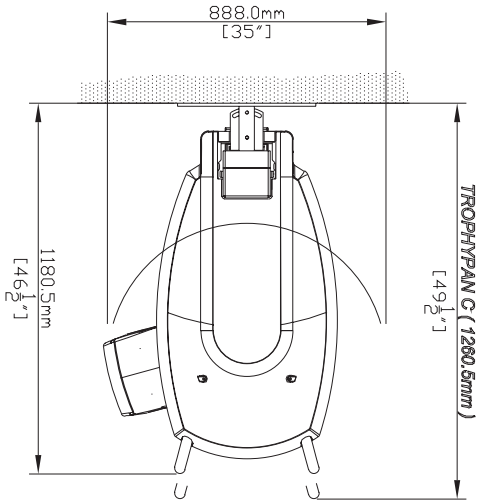
CAUTION If the TROPHYPAN is planned to be upgraded with a digital cephalometric attachment, please refer to the depth dimension mentioned in italics on the diagrams. The fixing hole of the screw will indeed be farthest from the wall to allow the mounting of the cephalometric attachment.

Overall height of the unit

2315mm

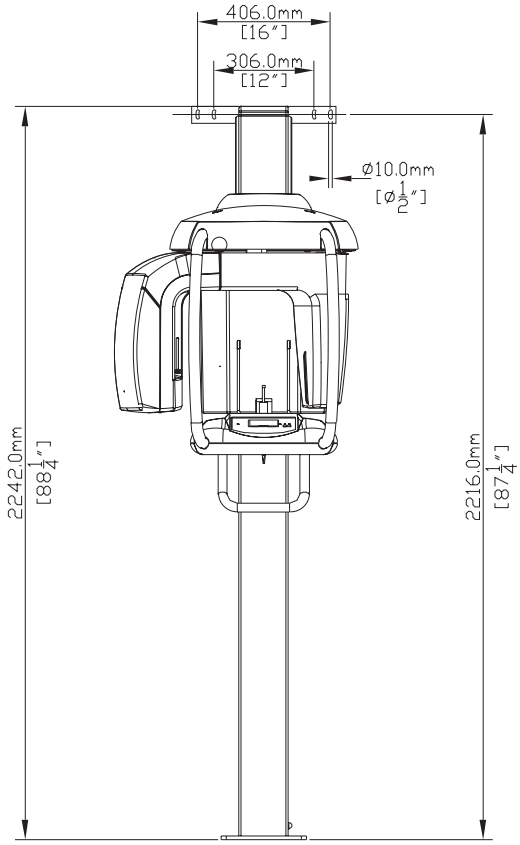


Width and depth of the unit

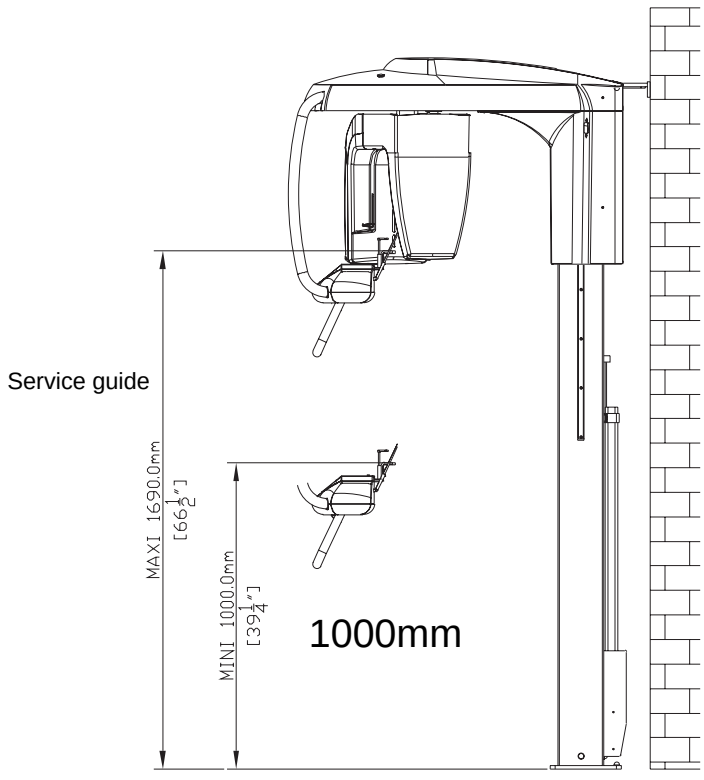


C:1260mm

Dimensions of the column and attaching parts



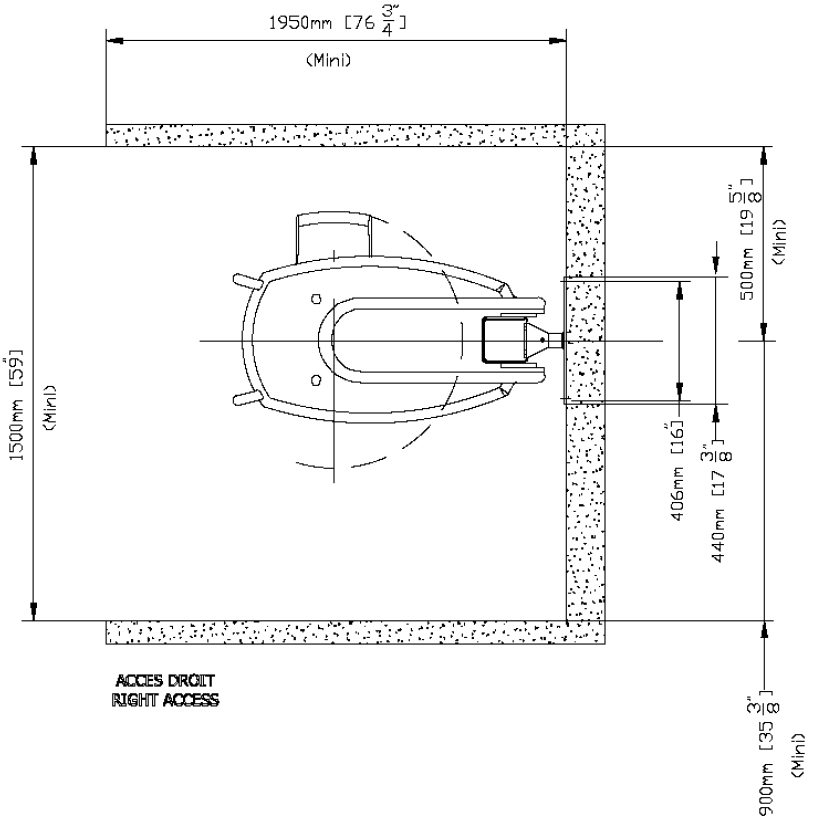
Minimum/maximum height of the chin rest



Installation drawing

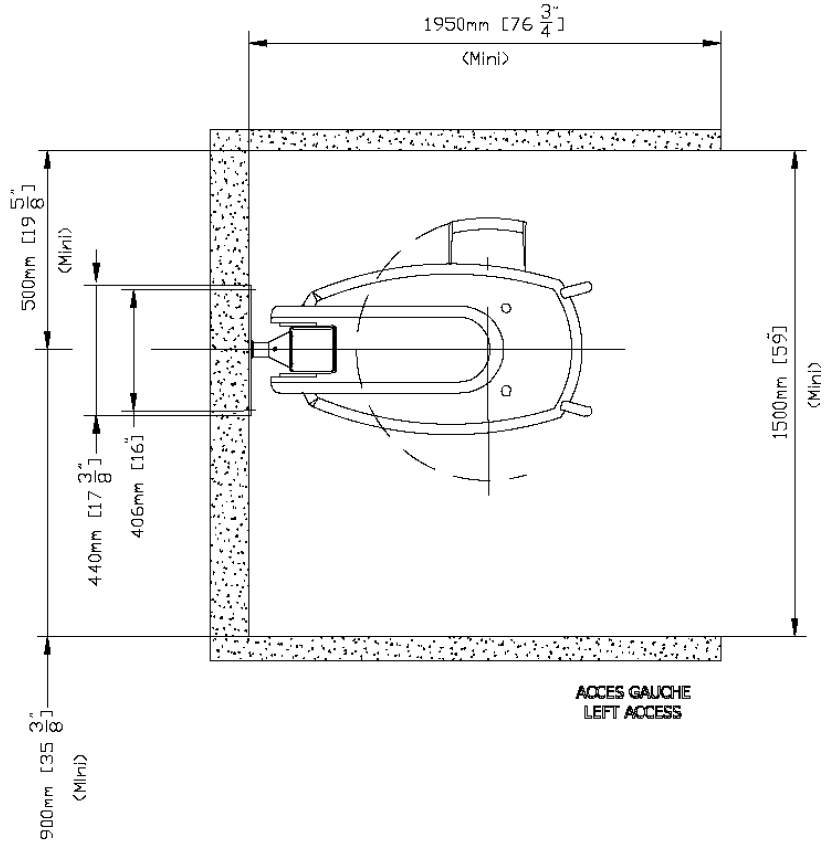
Standard Installation

A/ Access to the right of the unit



NOTE
These installation drawings show the recommended configurations to allow optimal access to the unit.

B/ Access to the left of the unit



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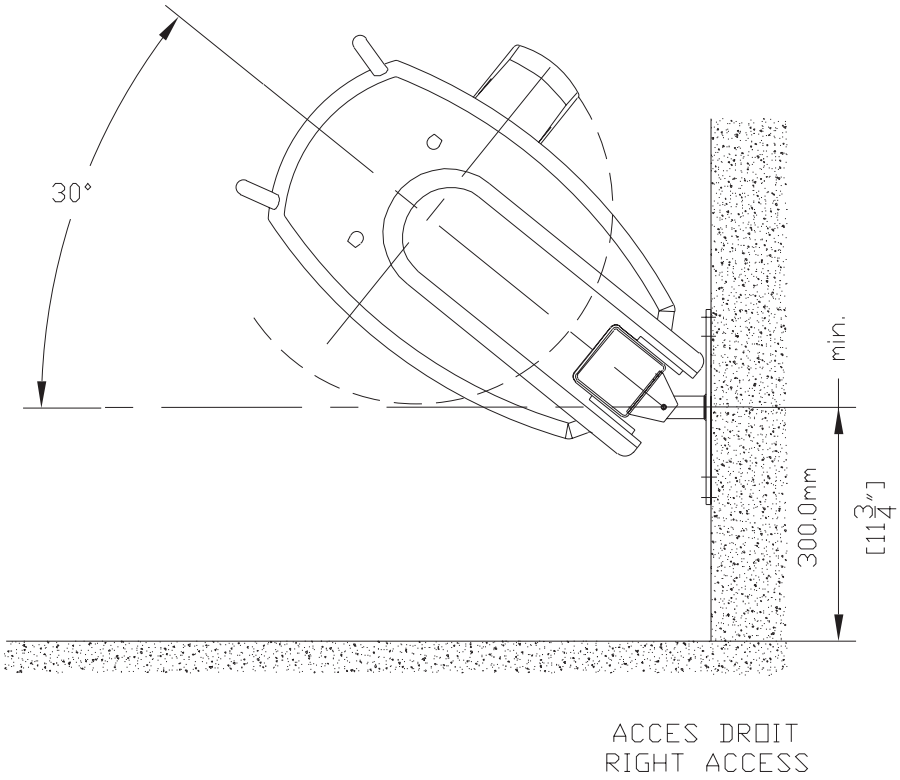
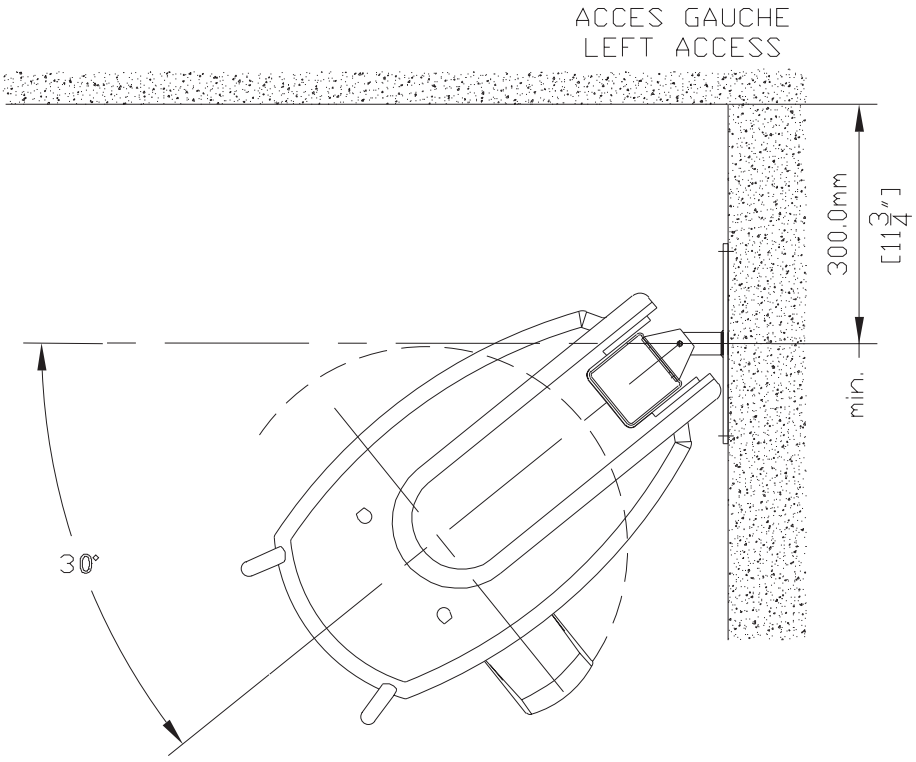
Installation at an angle

A/ Access to the right of the unit



B/ Access to the left of the unit



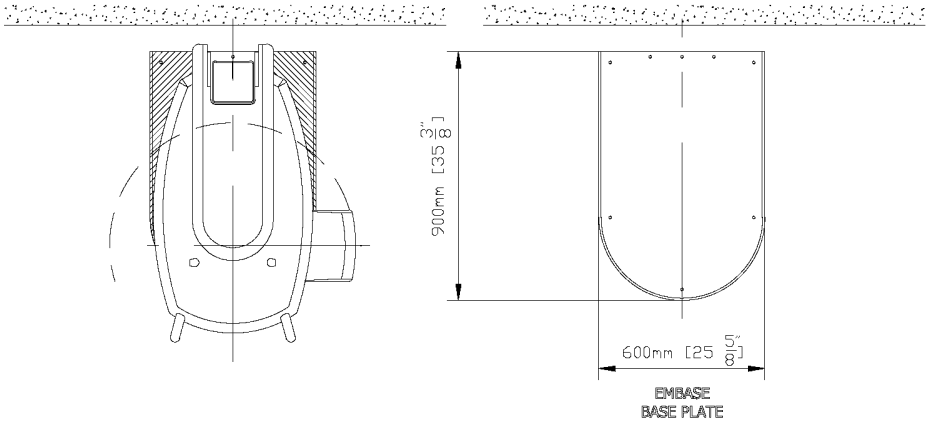
Optional base plate

A mounting base is available as an option for installation without drilling into the floor.

However, wall mounting the unit is strongly recommended in order to ensure optimal stability.

Dimensions:	900 x 600
Gross weight:	62 kg
Net weight:	50 kg
Reference:	HR 345

- **Dimensions of the base plate**



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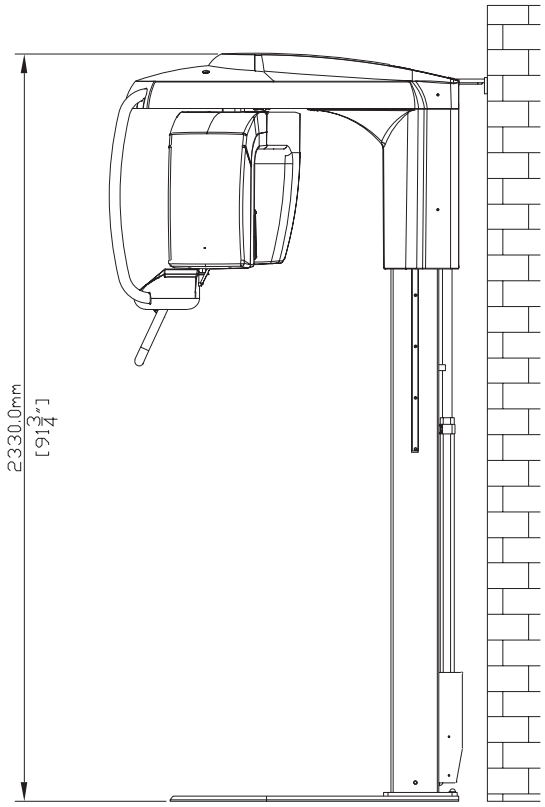
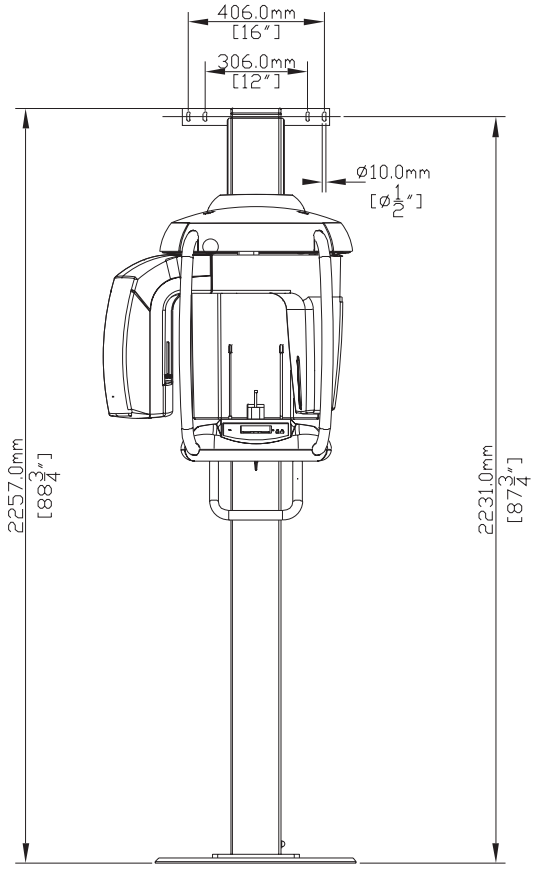
• Overall height of the unit including the base plate



• Dimensions of the column and attaching parts



SECTION 2

PACKAGING

	Box # 1: Head assembly	Box # 2: Column assembly
Dimensions (cm)	71 (D) x 123 (L) x 125 (H)	35 (D) x 240 (L) x 47 (H)
Weight	120 kg	80 kg

Description of the components

Box # 1: Head Assembly

The box contains various items:

① Separate components

② One box containing the technical accessories

③ One box of 'Accessories'

① Separate components

Product	Code	Description	Quantity
	CG 333	Panoramic head assembly	1
	HY 273	Upper column cover	1
	LV 098	Handswitch	1
	HY 173	Mounting hook for handswitch	1
	CG 329	Connection box	1
	CP 906	Extension for the connection box	1

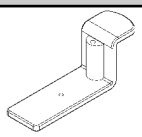
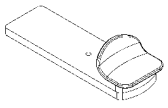
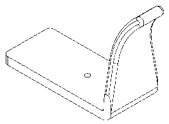
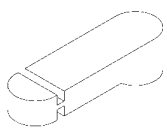
② Technical accessories

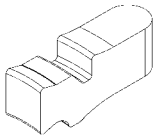
Product	Code	Description	Quantity
	CJ 648	PCI board	1
	LO 096	Masking floppy disk	1

	LO 012	Trophy Windows software and drivers	1
	LO 073	Test report	1
	OT 001	Centering screen tool for maintenance	1
	OT 011	Ball phantom for technical tests and for preventive and corrective maintenance	1
	ZN 013 ZN 014	Alen keys	2

NOTE
A 3-meter mains power cord with a European plug is also supplied with the unit.

③ One box of "accessories"

Product	Code	Description	Quantity
	JR 265	Panoramic chin rest (supplied fitted to the unit)	1
	JR 263	Chin rest for maxillary sinus sinus maxillaires	1
	JR 264	Nasal support for TMJ program	1
	HY 048	Standard bite block	6

	HT 182	Bite block for 'edentulous patients'	2
	FC 020	Bite block support	2
	BD 103	Plastic hygienic protective sleeves (box of 500 items)	1

Box # 2: Packaging for the Column Assembly

Product	Code	Description	Quantity
	CG 298	Column assembly	1
	CG 332	Wall mounting bracket	1

SECTION 3

CHECKING THE PREMISES BEFORE INSTALLATION

Standards

Compliance with standards:

Check that the room in which the unit is to be installed complies with the electrical standards and the radiological protection standards in force in the country concerned.

Mechanical

Position of the unit in the room:

Prior to placing the order and before installation, carefully check the position of the panoramic unit in the room.
We recommend that the unit should be installed along a wall, but a minimum amount of space must be provided to allow easy access to the patient or by the maintenance technician.
The wall bracket allows an optimal installation in a corner of the room.

Minimum width of the door:

The width of the door must be at least 80 cm (31.5”). 80cm

Minimum height of the ceiling:

The overall height of the unit is 230 cm (90.5”). We recommend that the minimum height of the ceiling should be 240 cm (94.5”). 240cm
If space is at a premium, the height of the column can be adjusted at the factory if specifically requested on the order.

Strength of the wall:

The wall must be capable of withstanding an extraction force of 150 kPa at each point of attachment.
Depending on the type of wall, it is the responsibility of the installer to choose a fixing system which is capable of withstanding an extraction force of 150 kPa applied to each fixing.

Load-bearing capacity of the floor:

The load-bearing capacity of the floor should be 500 kg/m^2.
The floor must be solid and flat.

Electrical

Required electrical specifications:

Nominal voltage* (no load)	Minimum	Maximum	Maximum line current
110 V	99 V	143 V	20 A
130 V	99 V	143 V	20 A
230 V	207 V	264 V	10 A
240 V	207 V	264 V	10 A

* The units are supplied for operation at either 110 / 130 V 60 Hz or 230 / 240 V 50 Hz or 230 / 240 V 60 Hz. The frequency and the operating voltage cannot be modified on site. They must be selected when the order is placed.

CAUTION If other units are installed on the same line, interference and voltage fluctuations may cause the radiological unit to operate abnormally.

We strongly recommend that a separate electrical line should be dedicated to supply power to the TROPHYPAN. This line should be protected by a circuit breaker with a maximum current of:

- 16 A at 230 / 240 V
- 20 A at 110 / 130 V

and a differential of 30 mA.

Electrical power supply

Every radiological unit must be connected to a reliable electrical power supply with a standardized grounding connection.

A single-phase alternating current power supply is required and the characteristics of the electrical installation should be as follows:

Supply voltage	230V / 240 V	230V / 240 V	110 / 130 V
Frequency	50 Hz	60 Hz	60 Hz
Electrical supply	6 kW	6 kW	6 kW
Line current required	16 A	16 A	20A
Cable cross-section according to length	For 30 m: 2.5 mm^2	For 30 m: 2.5 mm^2	For 10 m: 2.5 mm^2
Max. line impedance	0.5 Ω	0.5 Ω	0.12 Ω
Differential circuit breaker	30 mA	30 mA	30 mA
Maximum current to trip circuit breaker	16 A	16 A	20 A
Characteristics of bipolar switchs	250V 16 A	250V 16 A	250V 20 A
Characteristics of the warning lamps	60 W	60 W	60 W

- The power supply line must be protected by a differential circuit breaker which trips at maximum current (refer to the characteristics above).

- A bipolar switch should be installed in order to simultaneously isolate the current to the active conductors of the radiological installation to the exclusion of any other electrical equipment (refer to the characteristics above).
  The switch button must be located near the operator so that he can quickly cut the power supply if necessary (emergency stop button). If the control station is far from the equipment, a second emergency stop button should be installed near the radiological unit.

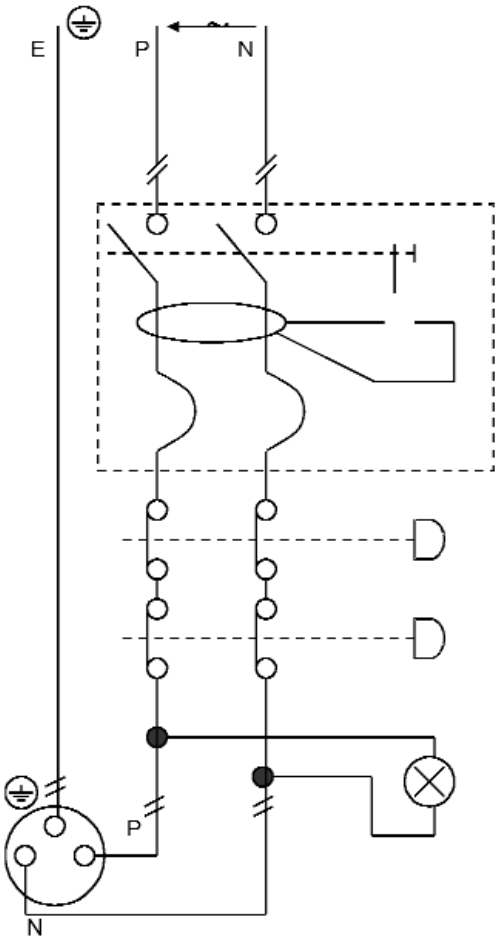
- A red warning lamp must be fitted near the switch to indicate that the unit is live.It should be installed outside the point of access to the radiological room (one lamp should be fitted at each point of access).

- A yellow warning lamp may be connected to the unit, so that it is illuminated while the X-rays are being emitted.

- A door safety switch may be connected to the unit. This safety switch should trip if the door remains open, thus deactivating the handswitch.

ENGLISH

- The handswitch may be installed at a distance of up to 10 meters from the unit.



Mains distribution board

110 /130 V 60 Hz	230 / 240 V 50 / 60 Hz

Maximum current differential circuit breaker

I_{diff} = 30 mA	I_{diff} = 30 mA
I_{max} = 20 A	I_{max} = 16 A

Emergency stop button
Near the switch button

Emergency stop button
Near the unit

Red POWER ON lamp

Power supply socket

20 A socket	16 A socket

SECTION 4

INSTALLATION PROCEDURE

Tools to be supplied by the installer:

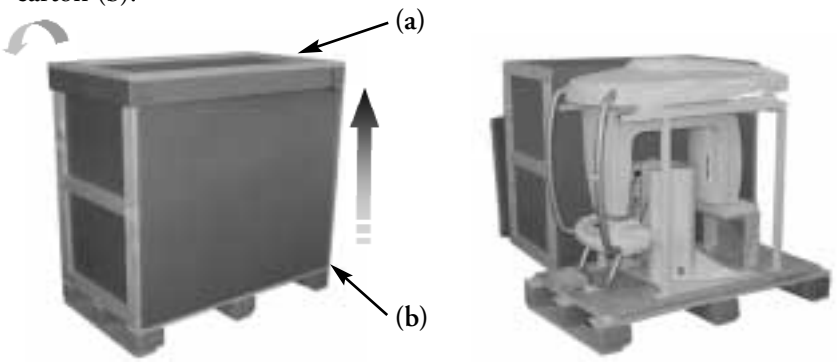
- Power drill
- Screws and bolts
- Wall plug
- Spirit level
- Tape rule
- Metric Allen keys

NOTE
All screw fittings have metric threads.

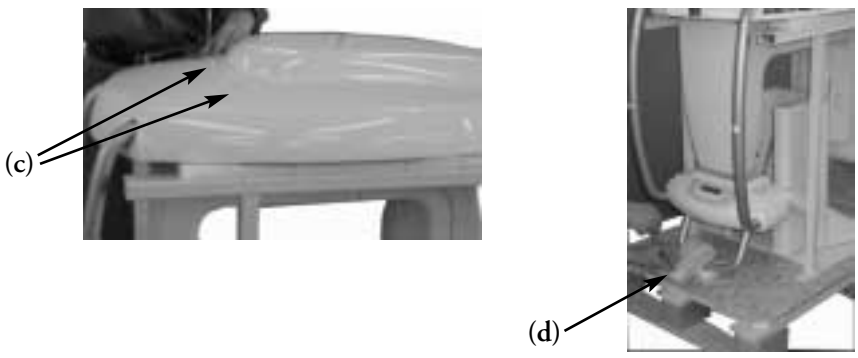
Procedure for opening the boxes

Box # 1:

1. Remove the upper cardboard from the packaging (a) and lift off the packaging carton (b).



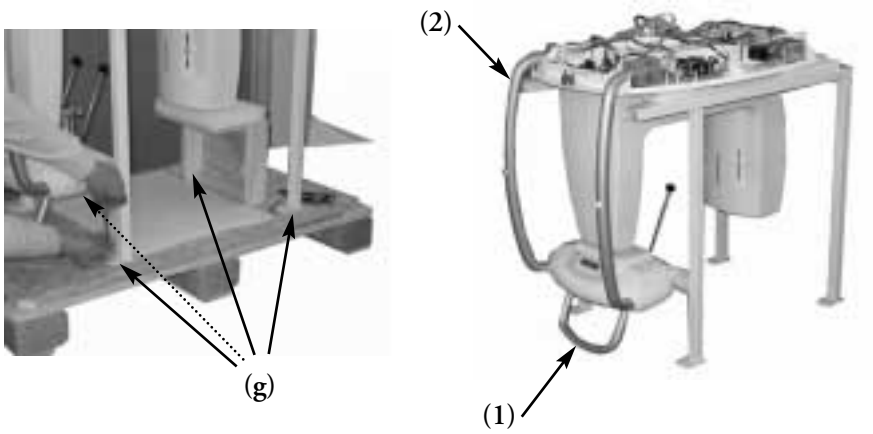
2. Release the upper cover (c) with the aid of the two screws. Remove the cover. Unscrew the protection from the patient handle (d).



3. Release the cover of the sliding unit (e) with the aid of the 2 screws. Remove it by turning it so as to avoid damage to the temple support arms (f).

4. Release the 4 screws (g) securing the metal transport frame to the pallet. Place the transport trolley (with the panoramic head) at the side of the pallet. This may allow the head to be transported upstairs while ensuring that it is protected.

WARNING Do not use the patient handle (1) to manoeuvre the unit. Grip only the upper part of the tubes (2).



Box # 2:

1. Open the carton from the side.

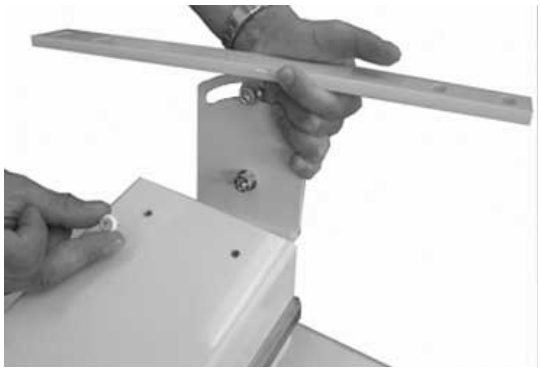
2. Remove the column from its box, using 2 persons - one at each end of the column.

Place the column on the floor. You can now proceed with the installation of the wall bracket. Wire the electrical connection board.

Mechanical and electrical installation

1. While the column is still on the floor, in a horizontal position, fit the wall mounting bracket, without tightening the screws.
Choose the second fixing hole, farthest from the wall.

CAUTION If the unit is aimed at receiving the digital cephalometric upgrade at a later stage, please choose the fixing hole farthest from the wall.



CAUTION
Do not connect the unit to the mains supply at this stage of the installation procedure.

2. Install the wiring in the base of the column, in accordance with the instructions specified above (refer to the diagram on the next page).

2.1 Connect the power cord to the unit.
If the power cord socket does not conform to national standards, wire in the correct type of socket.

Depending on the standards in force in your country, it is recommended that the following functions should be provided:

NOTE
For remote control of the X-rays, install a 12 mm diameter conduit with pull-in tape (or cable guide) between the base of the unit and the location of the X-ray shutter release; The same applies to the door safety switch contact and the 'X-ray emissions' safety lamp.

- **Safety lighting**

Connect the "X-ray emissions" safety lamp (max. 60 W).
This lamp illuminates when the unit is emitting X-rays.

- **Door safety switch:**

If this function is used, remove the strap (A) which is installed on the unit as the default configuration.
Wire in a 'Door safety' dry contact
(characteristics of the contact: 250 V min., 0.5 A min.).

This contact should be closed when the X-ray protection facilities are in place; otherwise it should be open.
If the contact is open, the x-ray handswitch release is disabled.

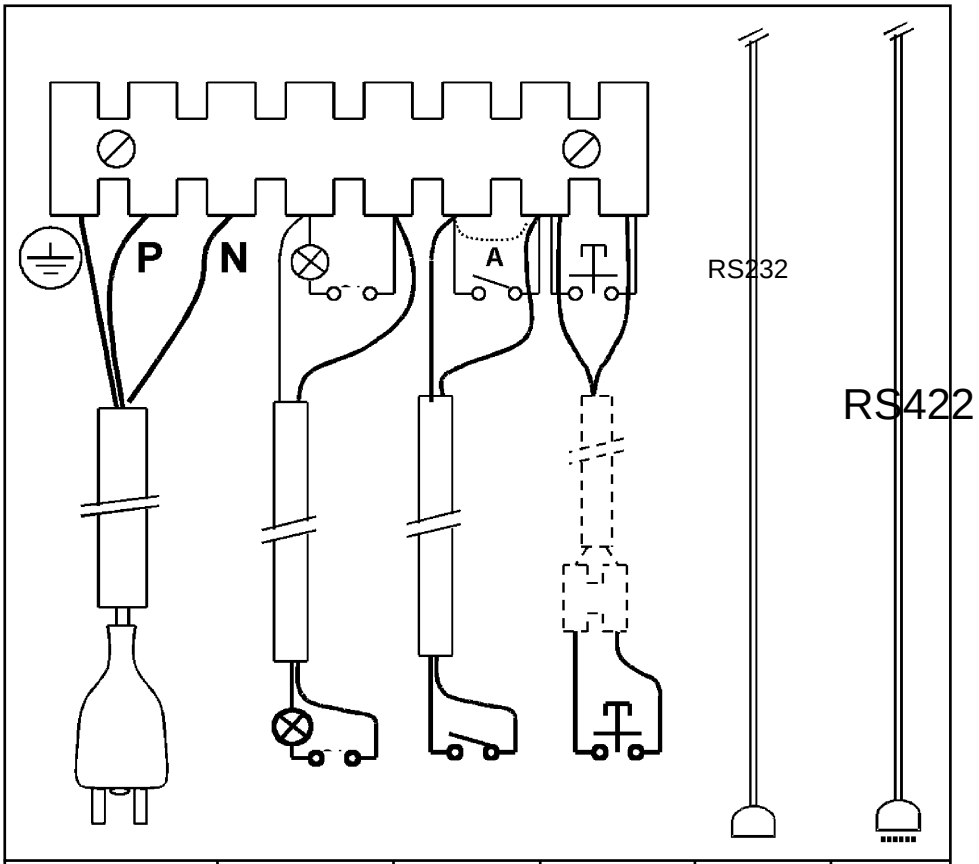
2.2 Install the X-ray handswitch release cables directly into the base of the column or use the extension kit supplied with the unit.

2.3 The procedure for wiring the RS232 link for the TROPHYPAN to the Com 1 or Com 2 port on the PC is described in the Section "Installing the PCI acquisition board in the computer".

CAUTION Modifications of the RS 232 and RS 422 cables are under the responsibility of the Trophy certified dealer.

2.4 The procedure for wiring the RS422 link for the digital acquisition system to the PCI data acquisition board supplied with the unit is described in the Section "Installing the data acquisition board in the computer".

collum terminal box



Power cord	Safety lamp 60 W (max)	Door safety contact 0.5A or strap	X-ray handswitch + extension kit	SUB-D 9-pin female To COM 1 or COM 2 on the PC	SUB-D 9-pin male To PCI acquisition board

Do not position the cover on the base of the column.

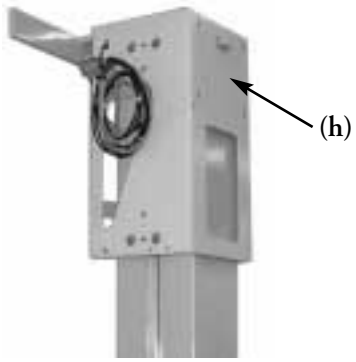
CAUTION – OPTIONAL BASE PLATE If a mounting base is to be used, it should be installed at this stage. However, mounting the column on the wall is STRONGLY recommended in order to ensure OPTIMUM STABILITY and to insulate the unit from vibration.

CAUTION If the unit is aimed at receiving a cephalometric attachment, fixing the column to the wall is IMPERATIVE.

ENGLISH

3. Place the column in a vertical position, taking care not to trap any cables between the column and the floor.
Hold the mounting bracket against the wall at the top of the column and mark the position of the fixing holes.
Move the column to one side as you drill the holes. Insert the wall plugs.

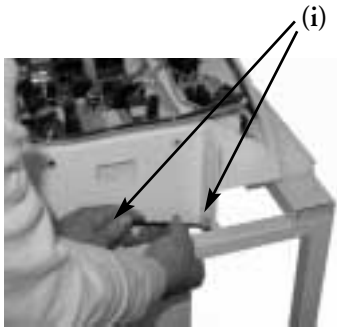
Then place the column in position and attach the mounting bracket to the wall.
Check that the colomn is properly aligned in both directions.

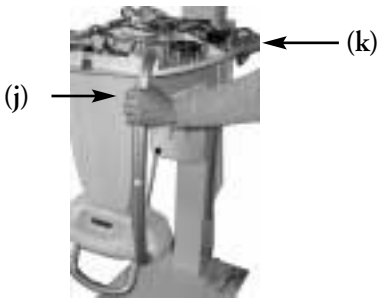


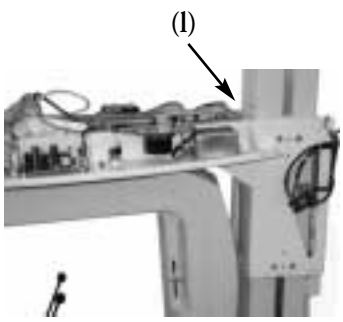
4. Mark the position of the 3 fixing holes at the base of the column and move the column to one side while you drill the holes. To do this, slacken the rotation screw on the wall mounting bracket.
Insert the plugs and tighten.
Check again that the column is vertical, then screw the mounting bracket securely to the wall.

5. Unscrew the panoramic head from its transport trolley (i).
Grasp the unit on each side by the handle (j) and the plate (k).
Locate the panoramic head on the column by positioning it on the hook of the sliding unit (l). Fit the 2 upper screws but do not tighten them.

WARNING Do not use the patient handle to manoeuvre the unit. Grip only the upper part of the tubes (j).



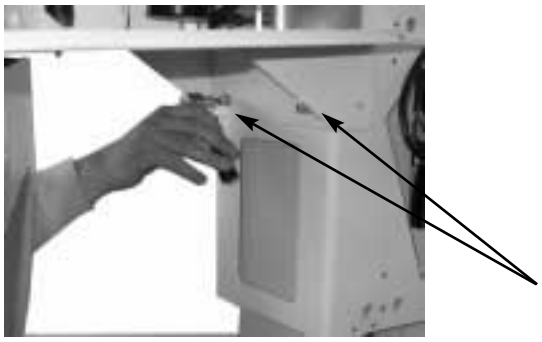




CAUTION
This locking screw must be used whenever the unit is transported or moved. If the arm unit is not immobilised with the locking screw, the unit may suffer serious damage

6. Then release the arm unit by withdrawing the transit locking screw (m) which passes through the CJ 653 board. Attach the screw to the chassis, so that it can be quickly retrieved if the unit is dismantled at a later date.

7. Rotate the arm unit by hand.
You can now locate the 2 screws at the base and then tighten them.



8. Tighten the 4 screws of the head assembly, while relieving the weight of the head at the front to facilitate tightening.
Position the cover of the sliding unit (n). Attach the switch to this cover.

The other covers are installed at a later stage, after checking the settings of the unit.
You can now install the wiring connections.

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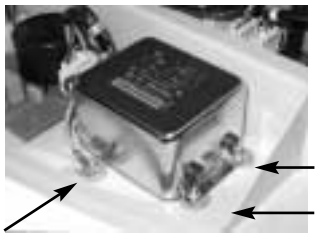
Installing the wiring

CAUTION
Ensure that the unit is switched off and disconnected from the power supply.

Cable # 23 to J 9 of the CJ 653 board

(O)
(P)

Cable # 36 on J5 of the CJ 699 board (O)
Cable # 37 on J8 of the CJ 699 board (P)

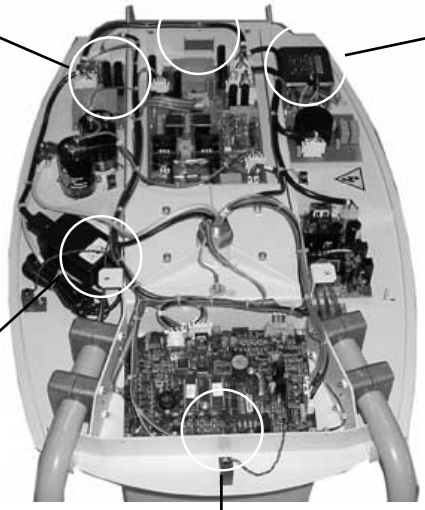


(Q)
(R)

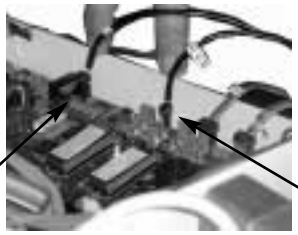
Blue cable (Q) and brown cord (R) to the mains input terminals. Their position is dependent on the wiring for the filter output.

+ yellow cord (Ground) to the screw at the side of the filter

CAUTION
Never connect one of the mains wires to the central terminal of the filter ground



Digital sensor to PC connection
SUB-D9-pin male and female



Cable # 10 to J 15 of the CJ 664 board

Cable # 12 to J 18 of the CJ 664 board

Installing the computer

Environment

For details of the computer system (PC and screen), refer to the installation manuals of your microcomputer. Sufficient clear space must be left around the CPU to ensure that it is properly ventilated. In order to obtain maximum image quality and visual comfort, the screen should be positioned so as to avoid direct light reflections (internal or external lighting).

The imaging system must be inspected and checked in accordance with the standards currently in force.

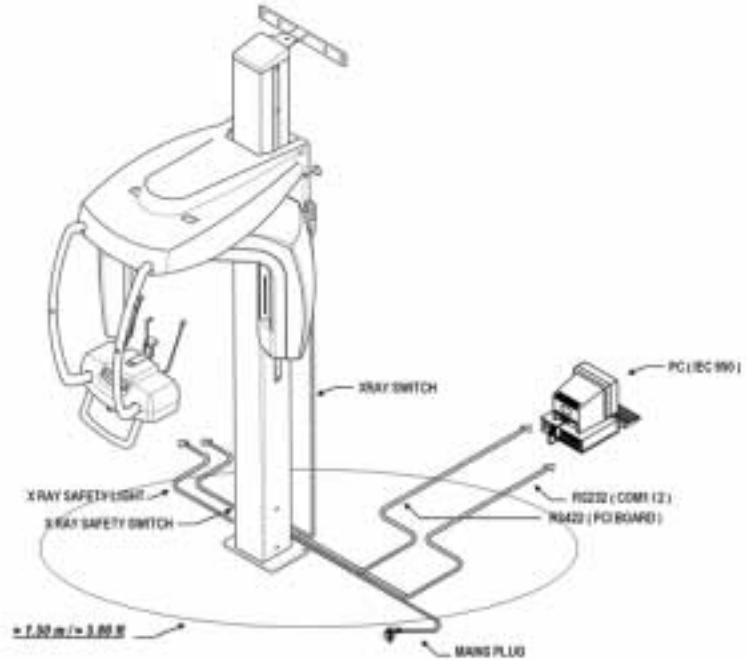
TROPHYPAN has been designed to comply with European and international medical standards, therefore the computer configuration should comply with IEC Standard 950.

The PC and the peripheral equipment connected to it must not be located in the immediate vicinity of the patient, thus at least 1.5 m from the panoramic unit.

Check that the electrical system complies with the standards currently in force in the country of installation: in France this is Standard NFC 15-100.

Minimum configuration

Microprocessor	Pentium III or equivalent
Standards	IEC 950
Hard disk	20 GB
Graphics card (SVGA)	4 MB
RAM (random access memory)	64 MB (Windows 98, 2nd edition), 128 MB (Windows 2000, XP, Me)
Operating system	Windows 98 (2nd edition), Me, 2000, XP
Type of PC	Multimedia
Available hardware slots	One PCI slot + One RS 232 serial communication port
drivers	CD-ROM + floppy disk
Data backup system high capacity magnetic medium	



Installing the PCI acquisition board in the computer

Description

Supported operating systems include Windows 98 (2nd Edition), Me, 2000, and XP.

NOTE
The board must be installed by an approved Trophy technician.

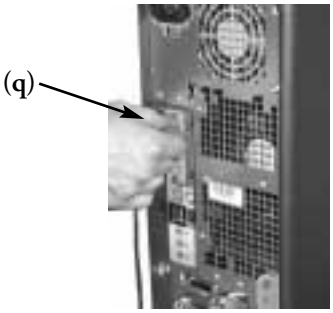
Step-by-step instructions

• Initial installation

1. Install the board in an unoccupied slot in the computer. Close the computer.

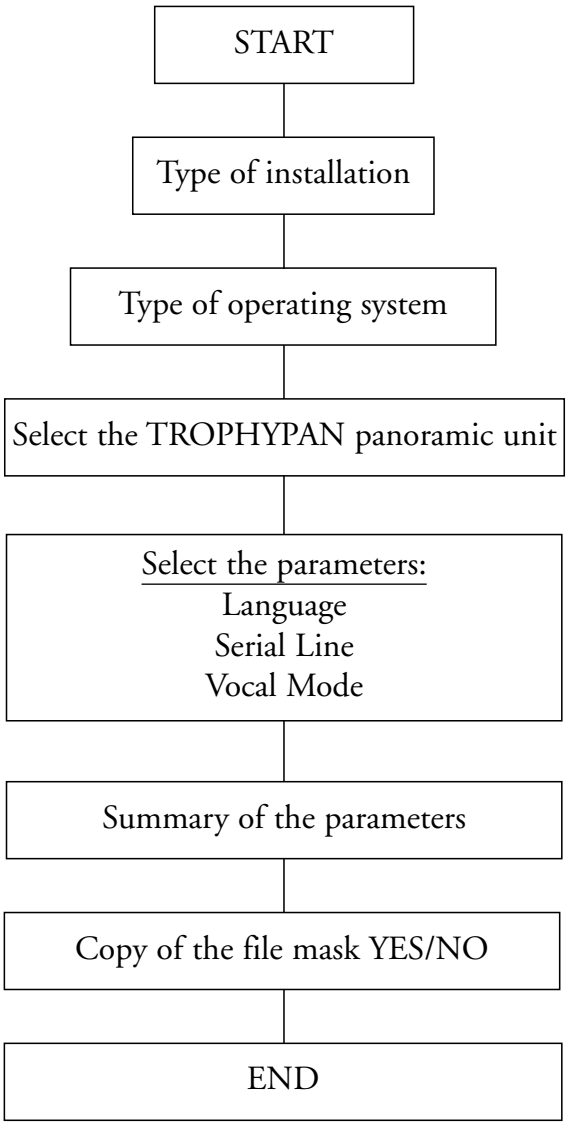
CAUTION
Before carrying out any technical work on the computer, ensure that it is switched off and disconnected from the mains power supply.

2. Connect the RS 232 cable (COM 1 or 2) (a) and the RS 422 cable (PCI board) (b).



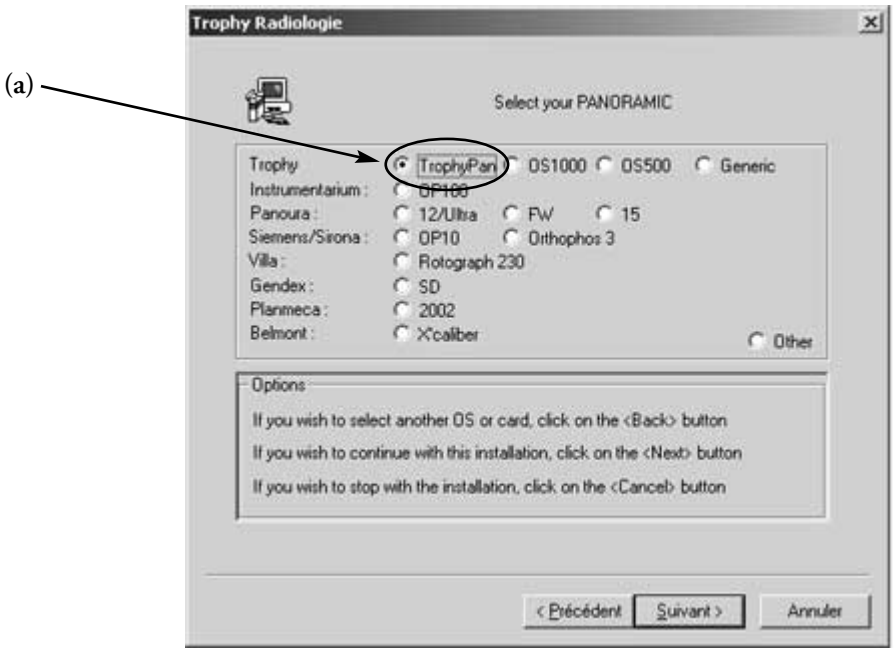
3. Boot the PC. Wait while Windows detects the presence of a new board.

NOTE
When running Windows 2000 and XP, Administrator access is required for the complete installation and configuration procedure



4. Scroll through the default options offered by Windows by clicking on Next until Windows asks for the access path for the drivers. Insert the Trophy Windows CD-ROM supplied with the panoramic unit (if Autorun starts, quit by clicking on Exit), enter "X:\DigiPCI" (X: being the CD-ROM drive). When the "Plug & Play" installation is complete, restart the computer.

5. The "DINSTALL" window is displayed (if this is not the case, the program can be launched manually from the CD-ROM or from the Windows directory).
When you have selected your type of installation (Initial Installation) and your Windows operating system, select TROPHYPAN (a) as the name of the panoramic unit.



6. A new configuration window is displayed.

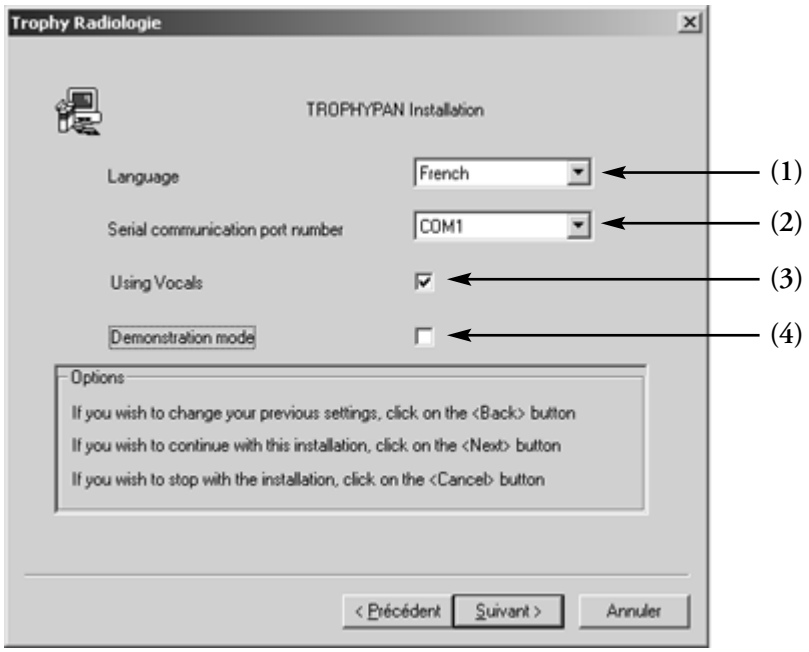
Choose:

- the required language (1)

- the number of the serial port on the PC to which the link for the panoramic unit is to be connected (2).

- activation of vocal mode (voice assistance) (3). This option can be modified while the software is in use.

CAUTION The Demonstration mode (4) is **solely intended for commercial use.** Activation of this mode disables any communication with the unit and, as a result, prevents the image acquisition.
Do not activate this mode for an on-site TROPHYPAN installation.



The number of the COM port can be changed by selecting the "Preferences" menu in Trophy Windows. The vocal mode can be changed in the user interface of the panoramic unit.

When all the parameters have been configured, the system asks if the cassette mask should be installed. Tick the box to copy the mask. Then insert the floppy disk containing the mask (supplied with the kit) into the floppy disk drive and click on "Next".

Click on "Finish" to complete the installation of the drivers.

7. Reboot the computer to store the parameters before using the TROPHYPAN. Then install the Trophy Windows software (refer to the next section).
(If this is not an initial installation, refer to the Service Manual).

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Installing the Trophy Windows software

CAUTION
TROPHYPAN is only compatible with Trophy Windows version 5.0 or higher.

When the board has been installed, the next step is to install the Trophy Windows software. To do this, insert the Trophy Windows CD-ROM into the drive and wait until the main menu is displayed. If it fails to appear, launch the software manually (AutorunTW.exe on the CD-ROM). Then click on the "Install Trophy Windows Imaging Software" icon and follow the instructions. If a version of Trophy Windows already exists, it can be upgraded using the same procedure without affecting the database.

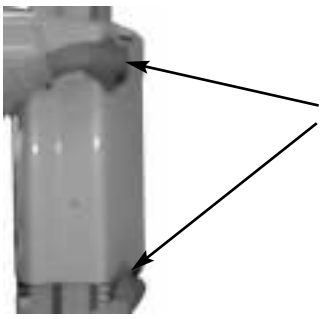
The installation of TROPHYPAN is now complete. For more information, refer to the TROPHYPAN and Trophy Windows user manuals. A detailed online Help function is also available at any time from Trophy Windows.

Fitting the covers

You can now install the last of the covers.

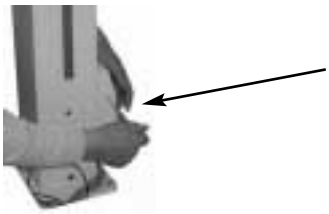
1. Fit the upper cover to the panoramic unit.

2. Install the rear panel to the sliding unit while rotating the column.



3. Position the upper cover on the column.

4. Install the cover of the electrical junction box.



5. Check that all the screws in the wall and floor have been tightened.

6. Connect the power supply to the panoramic unit.

Post-installation checks

WARNING The technician must comply with the standards currently in force while installing and using the radiology unit.
Whenever necessary, he must use a shield or wear a lead-lined apron.

The unit must be switched off before the covers are removed.

Any work which has to be carried out on the unit while it is switched on and while the covers are removed must be undertaken by an approved Trophy technician. Unqualified persons must not approach the unit.

1. Acquire an image using the ball phantom supplied with the unit. Remove the biteblock. Position the ball phantom and check that the graduated scale on the chin rest is set to the "0" position.

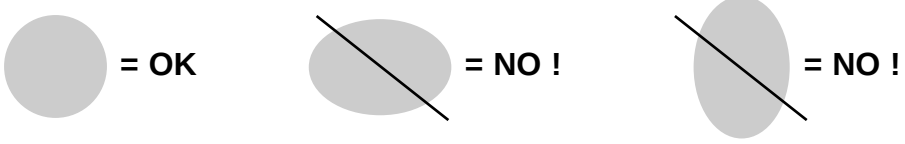
2. Check that the sagittal-median and canine lasers intersect perpendicularly on the central ball of the ball phantom. Check that the laser of the Frankfurt plane is perpendicular to the centerline of the digital sensor.

If the lasers are not correctly aligned, refer to the Service Manual.

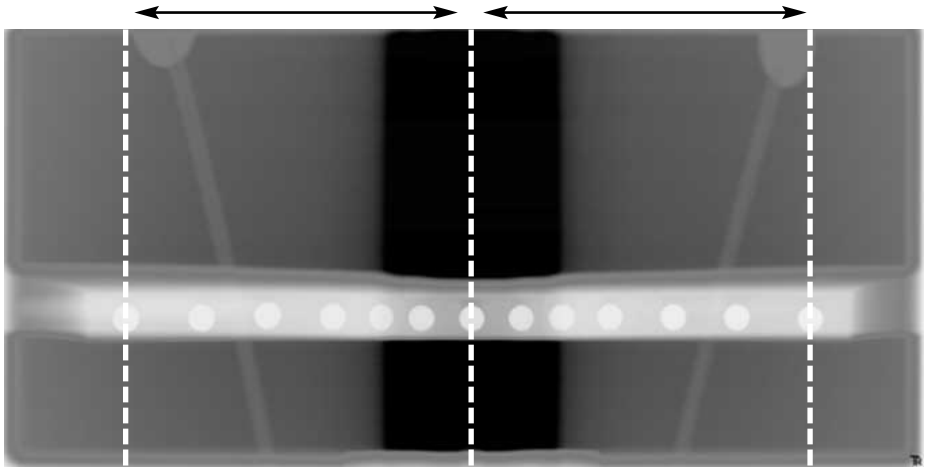
3. Acquire a panoramic image at 60 kV, 2 mA.

4. On the image (refer to the diagram below), check:

- the size of the balls
- the circularity of the balls. The circularity of the central ball is the most important feature to be checked.



- the right / left symmetry.



5. If the results of the checks on the negative are satisfactory, the unit is ready for use and the installation is complete.

If the results of any of these checks are unsatisfactory, refer to the Service Manual in order to identify the causes of any problems.

SECTION 5

TECHNICAL SPECIFICATIONS

General technical specifications

Product identification	Digital Panoramic Radiology Unit, controlled from a PC interface. Face-to-face positioning
Digital sensor	CCD + optical fiber sensor
Dimensions of the matrix	2,500 x 1,244 pixels
Gray scales	4,096 – 12 bits
High tension generator	140 kHz (max.) 60 - 90 kV 2 – 15 mA
Line voltage	230-240 V / 50 Hz , 230-240 V / 60 Hz 110 - 130 V / 60 Hz
Focal spot of tube	0.5 mm (IEC 336)
Total filtration	> 2.5 mm eq. Al
Anode voltage	90 kV max.
Cathode current	15 mA max.
Imaging procedures	Panoramic Segmented panoramic Maxillary sinus Lateral TMJ, 2 sections Lateral TMJ, 4 sections
Period of exposure	Adult panoramic: 13.9 sec. Pediatric panoramic: 13.2 sec. Maxillary sinus: 10.7 sec. Lateral TMJ, 2 sections: 4.6 sec. Lateral TMJ, 4 sections: 9.2 sec.
Exposure mode	2 programs (adult and child) 3 sizes (adjustable by the user)
Magnification	x 1.27
Dimensions (standard installation) **(with base plate)**	888 (L) x 1180 (D) x 2315 (H) mm* 888 (L) x 1180 (D) x 2330 (H) mm
Weight	120 kg

*** On request, the height of the column can be adjusted at the factory.**

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International standards

Electromagnetic compatibility

With regard to EMC, this product complies with European Directive 89/336/CEE.
This product complies with European Standard EN 60601-1-2 (1993).
Its classification is Group I, Class B.

Conforming to IEC Standards 601.2.7 (1998) and 601-1 (1995)

MANUFACTURER:
TROPHY
4, rue F. Pelloutier, Croissy-Beaubourg
77437 Marne la Vallée Cedex 2, France

MODEL:
TROPHYPAN, radiographic dental diagnostic unit, IEC 601.2.7 (1998),
Class 1, Type B, Intermittent Operation,
with protection against X-rays complying with IEC 601.1.3 (1994)

AMBIENT OPERATING CONDITIONS

Temperatures	5 -35 °C
Relative humidity	30 - 85%
Atmospheric pressure	700 - 1060 hpa

STORAGE CONDITIONS

Temperature	-10 - 60 °C
Relative humidity	10 - 95%
Atmospheric pressure	700 - 1060 hpa

TRANSPORT CONDITIONS

Temperature	-10 - 60 °C
Relative humidity	10 - 95%
Atmospheric pressure	700 - 1060 hpa

Type of electrical power supply:	**230 - 240 V (± 10%)** **50/60 Hz, single-phase**	**110 -130 V (± 10%)** **60 Hz, single-phase**
Apparent resistance of the power supply circuit	0.5 Ω (max.)	0.12 Ω (max.)
Permanent absorbed current	0.45 A	0.9 A
Current absorbed during the X-rays emission	9.5 A	17 A
Max. absorbed power	2.2 kVA	1.9 kVA
Protection for the power supply system	By shutter release at a max. current of 16 A and a differential current of 30 mA	By shutter release at a max. current of 20 A and a differential current of 30 mA
Nominal high tension	90 kV	90 kV
Maximum corresponding tube current	10 mA	10 mA
Nominal tube current	15 mA	15 mA
Maximum corresponding high tension	80 kV	68 kV
Tube current/voltage combination for maximum output power	80 kV, 15 mA	85 kV, 12 mA
Nominal power for an exposure time of 0.1 s.	at 80 kV, 15 mA: 1200 W	at 85 kV, 12 mA: 1020 W

Utilization rate in continuous mode (for example: one exposure – 85 kV, 5 mA – 13.9 sec every 3 minutes)	33W.
Utilization rate in intermittent mode (for example: one exposure – 80 kV, 15 mA – 13.9 sec every 3 minutes)	93 W.

Selection of the load parameters:	
kV (in increments of 1 kV)	From 60 to 90 kV
mA (in increments of 25%)	From 2 to 15 mA

Cooling conditions:	
Maximum dissipation of heat from the X-ray radiogenic assembly into the ambient air (for a utilization rate in continuous mode):	70 W.

Details of the load parameters:	
High tension:	kV ± 10%
Current in the tube:	mA ± 20%
Exposure time:	seconds ± (10% + 1ms)

Measurement conditions:	
KV	Indirect on the peak kilovoltmeter
MA	Direct measurement in the circuit using an oscilloscope
Exposure time:	Measurement at 75% of the kV values

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Characteristics of the X-ray radiogenic assembly

Conforming to IEC Standard 601.1.3 (1994)

IEC Standard 601.1.3 (1994)	Compliant
Nominal value of the inherent filtration at 70 kV	2.8 mm (0.11'') eq. Al
Nominal value of the supplementary filtration at 70 kV	Not applicable
Nominal value of the total filtration at 70 kV	2.8 mm (0.11'') eq. Al
Filtration value for the enclosure of the radiogenic unit (at 100 kV)	0.2 mm (0.08") eq Al
Filtration value for the enclosure of the image receiver unit (at 100 kV)	0.2 mm (0.08") eq Al
Filtration value for the sensor case	0.8 mm (0.31") Al
Value for the arms of the head clamp (at 100 kV)	1.0 mm (0.039") eq Al
Distance between the focal spot and the sensor	522 mm (20.55 ".)
Location of the reference axis	Refer to the diagram below
Size of the beam at the sensor	5 x 126 mm
Radiation leakage after one hour's operation *(maximum utilization rate of 93 W, i.e. 90 kV , 10 mA , 13.9 sec. every2 minutes 15 sec.)*	< 1 mGy

Conforming to IEC Standard 601.2.28 (1993)

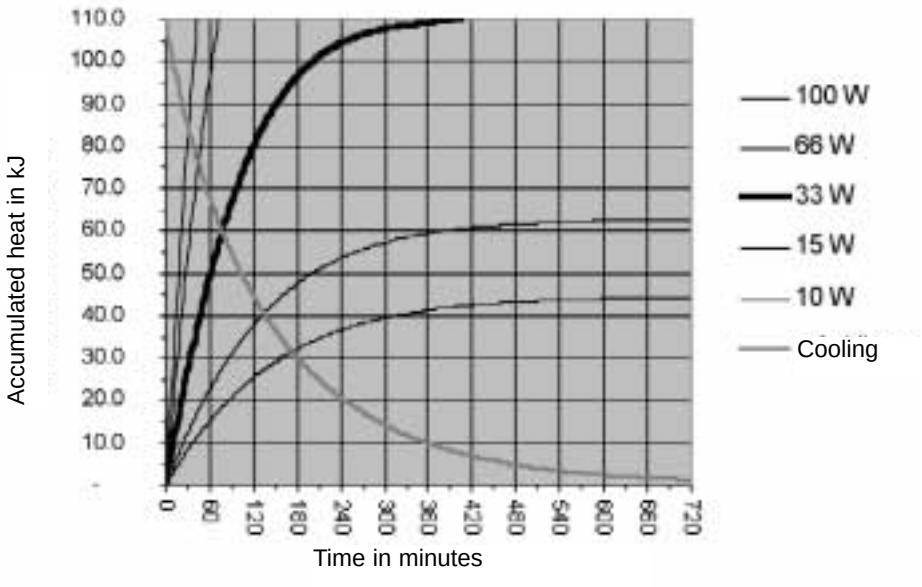
The radiogenic unit comprises:

- a transformer and a radiogenic tube, together with their associated electronic components immersed in oil.
- an aluminum filter which enhances the quality of the beam and reduces the dose received by the patient.
- a unit which limits the size of the beam at the image receiver unit.
- a thermal cutout which trips at an operating temperature of 65 °C ± 5 °C.

• Characteristics of the radiogenic unit

IEC Standard 601.2.28 (1993)	Compliant
Manufacturer	Trophy
Degree of protection against electric shock	Class I
Degree of protection of the parts applied to the leakage current from the patient	Type B
Maximum accumulated heat	110 kJ
Maximum continuous heat dissipation	33 W.
Nominal value of the focal spot (IEC 336/192)	0.5 mm
Tolerances on the position of the focal spot	+/- 2.5 mm
Weight	8.2 kg
Dimensions	235 x 245 x 120 mm

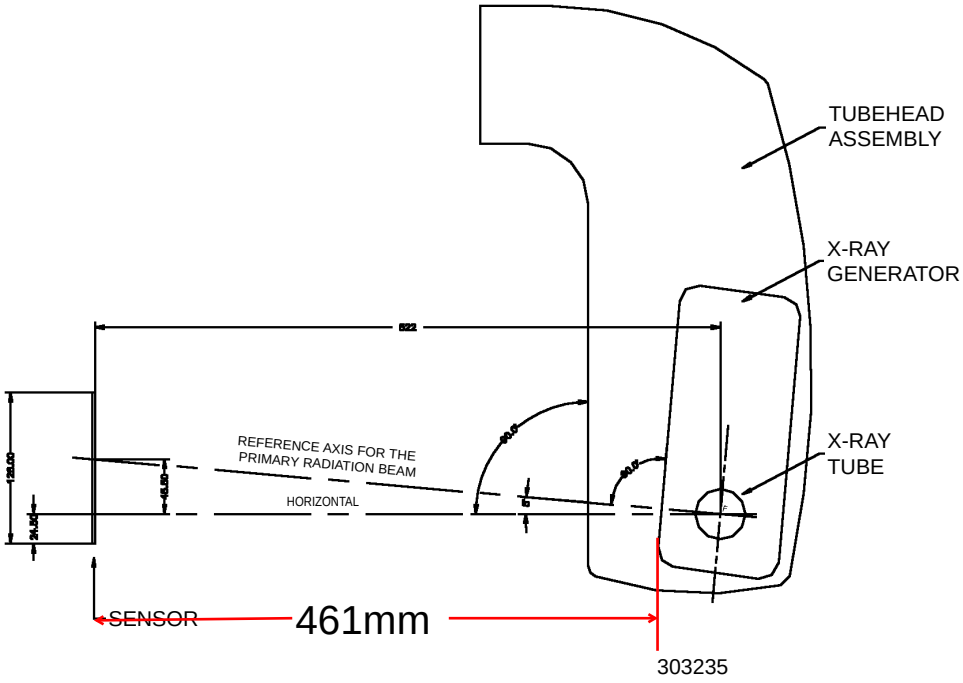
• Heating and cooling curves:



• **Beam limitation unit:**

Manufacturer	Trophy
Type	Rigidly mounted unit with fixed window dimensions, not removable dand integrated x-ray generator
Maximum symmetrical field of radiation 5 mm to 126 mm at a distance of 522 mm from the focal point	Complies with IEC Standard 806 (1994)

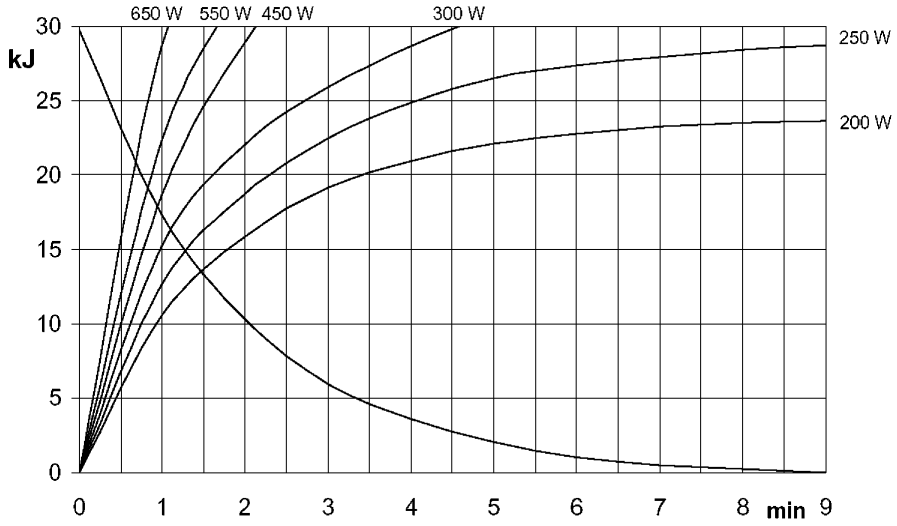
• **Position of the reference axis:**



• **Characteristics of the X-ray tube:**

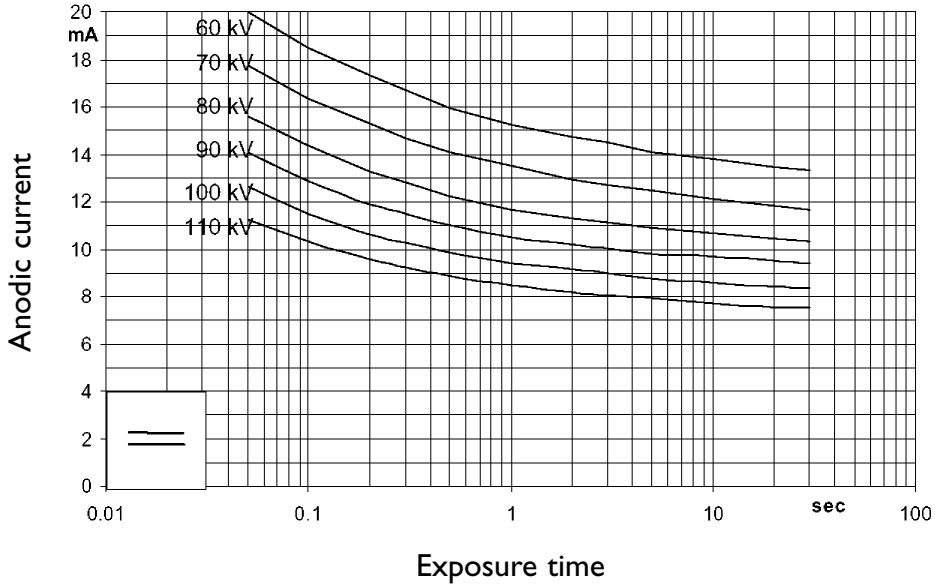
Manufacturer's name	CEI
Type	OPX 105
Nominal high tension	90 kV
Nominal anodic power	810 W
Maximum amount of heat accumulated in the anode	30 kJ
Nominal focusing value (IEC 336/1982)	0.5 mm (0.020'')
Collector electrode materials	Tungsten
Angle of the collector electrode	5°
Inherent filtration	0.5 mm (0.20 ") eq. Al

• **Heating and cooling curves:**

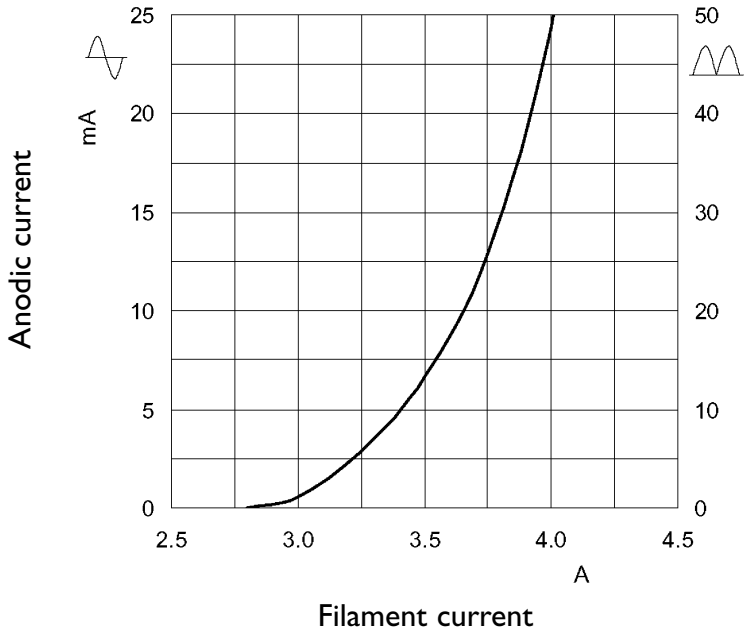


ENGLISH

• **Load alignment chart:**



• **Characteristics of emissions from the filament:**



CHAPITRE 6

PREVENTIVE MAINTENANCE

Annual maintenance

We recommend that a general inspection of the unit should be carried out every year by an approved Trophy technician. The inspection should cover the following points:

- Check the mechanical installation

- Clean the rotation track

- Check the alignment of the radiation

- Make a test exposure on the ball phantom and check the image

- Check the points of attachment to the floor and wall

- Check the degree of legibility of the labels

- Check the X-ray generator

- Check the focal trough

- Damage to cables, covers, oil leaks, etc.

If the results of any of these checks are unsatisfactory, refer to the Service Manual in order to rectify any problems.

If there is any doubt, do not operate the unit.

TROPHYPAN : EXTRAORAL DIGITAL X-RAYS SYSTEM

Kodak8000C Installation Guide

trophy
A Kodak Company

Congratulations on your purchase of a Trophy radiography system. Thank you for confidence in our products and we will do all our best to ensure your complete satisfaction.

You now have the Installation Guide for the TROPHYPAN C, the digital extra-oral X-ray unit. We recommend that you thoroughly familiarize yourself with this Guide in order to make the most effective use of your system.

The information contained in this Guide may be subject to modification without notice, justification or notification to the persons concerned.

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The RVG technology is the subject of an international patent registered by Trophy Radiologie.

This document was originally written in: French.

Revision date: 05/2004

TROPHYPAN complies with Directive 93/42/CEE relating to medical device.

CE 0459

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Notes for the User

X-rays are not innocuous and can be dangerous if not used properly. Therefore, the instructions and warnings contained in this Manual must be carefully followed.

As a manufacturer of radiology units which conform to the most stringent radiological protection standards in force throughout the world, Trophy's knowhow guarantees the maximum degree of protection against radiation hazards.

Nonetheless, you are handling a radiology unit which is specially designed to emit a dose of x-rays in order to carry out a medical diagnosis with the aid of a Trophy digital imaging system (exclusive patent).

The room in which your radiology unit is to be installed must comply with all official regulations applicable to protection against radiation.

Your dealer will be pleased to assist with the initial use of your radiology unit and will supply any relevant information you may require.

The "WARNING" and "IONIZING RADIATION" symbols signify: "WARNING: IONIZING RADIATION".

To install, operate and service the unit, follow the instructions contained in this Manual.

Warnings and safety instructions

CAUTION Laser radiation. Do not look into the beam. Class 2 laser product.
This unit emits laser radiation. For maximum safety, advise the patient not to look at the beam.
Before illuminating the beams, lower the Frankfurt plane beam to the lowest level.
While making adjustments, ensure that the beam is not directed into the patient's eyes.

DANGER This is an electrical unit. Do not expose it to water spray. Such action may cause an electric shock or a malfunction of the unit.

WARNING The user is responsible for the operation and maintenance of this unit. This unit must only be operated by legally qualified persons. The cover of the unit must not be opened by the operator.
When necessary, inspection and maintenance operations should only be carried out by an approved Trophy technician.

WARNING This unit must be installed in x-ray room which complies with current installation standards.
From this location, visual or audio communication must be maintained with the patient, together with access to the control interface during exposure.

WARNING The TROPHYPAN C unit has been designed to comply with European and international medical standards. In order to ensure conformity, the PCI interface board must be installed in a computer configuration which conforms to IEC 950 Standard.
The PC and the peripheral equipment connected to it must not be located in the immediate vicinity of the patient, thus at least 1.5 m from the panoramic unit.
For details of the data processing system (PC and screen), refer to the installation manuals for your computer. Sufficient clear space must be left around the CPU in order to ensure that it is properly ventilated.
In order to obtain maximum image quality and visual comfort, the screen should be positioned so as to avoid direct light reflections (internal or external lighting).

WARNING Do not operate the unit if there is the threat of an earthquake.
Following an earthquake, ensure that the unit is operating satisfactorily before using it again.
Failure to observe this precaution may expose patients to hazards.

WARNING X-ray equipment can be hazardous to patients and the operator if the exposure safety factors and operating instructions are not observed.

WARNING Do not place objects within the field of operation of the unit.

WARNING Ensure that the patient and the operator are wearing aprons to protect them against X-rays.
Ensure that any parts of the unit which may come into contact with the patient and the operator have been disinfected after each patient has been exposed to X-rays.
While adjusting the height of the unit, the operator must ensure that the patient is kept clear of the mechanism.
When the unit is not in use, ensure that the ON/OFF switch is set to OFF (O).
If the unit develops a fault, switch it off (O) and display a notice 'Out of Order'.

WARNING To dispose of the unit and/or its components, contact our representatives or our Company.

WARNING Do not rotate the arm unit by hand as this may damage the unit.

WARNING The operator must ask the patient to refrain from moving during the entire period of exposure.

WARNING The operator must ask the patient to refrain from moving until the ARM UNIT has stopped moving and throughout the RESET movement.

WARNING Equipment not suitable for use in the presence of a flammable anaesthetic mixture with air or with oxygen or nitrous oxide.

Responsibility and Warranty

TROPHY guarantees for a period of two years starting from the invoice date of the product, that it does not contain any defects, in the materials used or at manufacturing level, and this only when used and maintained correctly.

Only the damage affecting the products themselves will be taken into account, the client can in no case claim damage compensation if it does not purely concern the products themselves provided that this exclusion of responsibility does not infringe any legal measures.

This warranty does not cover damages and faults due to accident, incorrect usage, improper use, negligence or wear and tear due to normal use.

The TROPHY company can therefore not be held liable for the consequences resulting from the non-application of the instructions contained in the installation and user manuals, namely bodily harm, profit loss, operational interruptions, data loss, loss of a financial nature or any direct or indirect damage.

If, on the other hand, the product is proven to be faulty with regards to materials or manufacturing, the responsibility will lie with TROPHY but will be limited to the repair of the aforementioned at its own facilities or, at the discretion of TROPHY, of its replacement. Regardless of the solution chosen by TROPHY, the client will need to return the faulty product at his own expense. It has clearly been established that except for the repair of the product where it will assume the cost of spare parts and labour, the TROPHY company will only take on the costs of return to the delivery address initially communicated by the client.

TROPHY will have the possibility to examine any presumed defect.

Clients are not entitled to delay the payment of their bills, nor to any financial deductions by way of the products reputed to be faulty.

Due to the continuous development of its products, TROPHY reserves the right to amend at any time the manual and products mentioned therein, without justification or having to notify the people involved.

Our products are guaranteed ex-works in their original packaging. TROPHY cannot be held liable for damages resulting from transportation conditions.

Consumable spares, software and accessories are excluded from the warranty.

SECTION 1

DIMENSIONAL DIAGRAMS

Installation drawing

Warnings

The given footprints are recommended footprints to ensure an optimal installation, a convenient access to the unit for the daily use and maintenance.

These footprints are valid for a standard installation, meaning an installation where the attachment is the same as the entrance side in the existing TROPHYPAN. For instance, it is recommended for a TROPHYPAN with an entry on the right side to install the cephalometric attachment on the right side. The access to the unit will thus be on the same side, which allows to gain room in the practice.

In case of an installation where the side of the arm is different from the side of entrance in the panoramic unit, the required footprints will be larger. The proper installation of the equipment will therefore be under the responsibility of the technician.

CAUTION Allow a sufficient space behind the cephalometric sensor to ensure an easy access in case of maintenance.

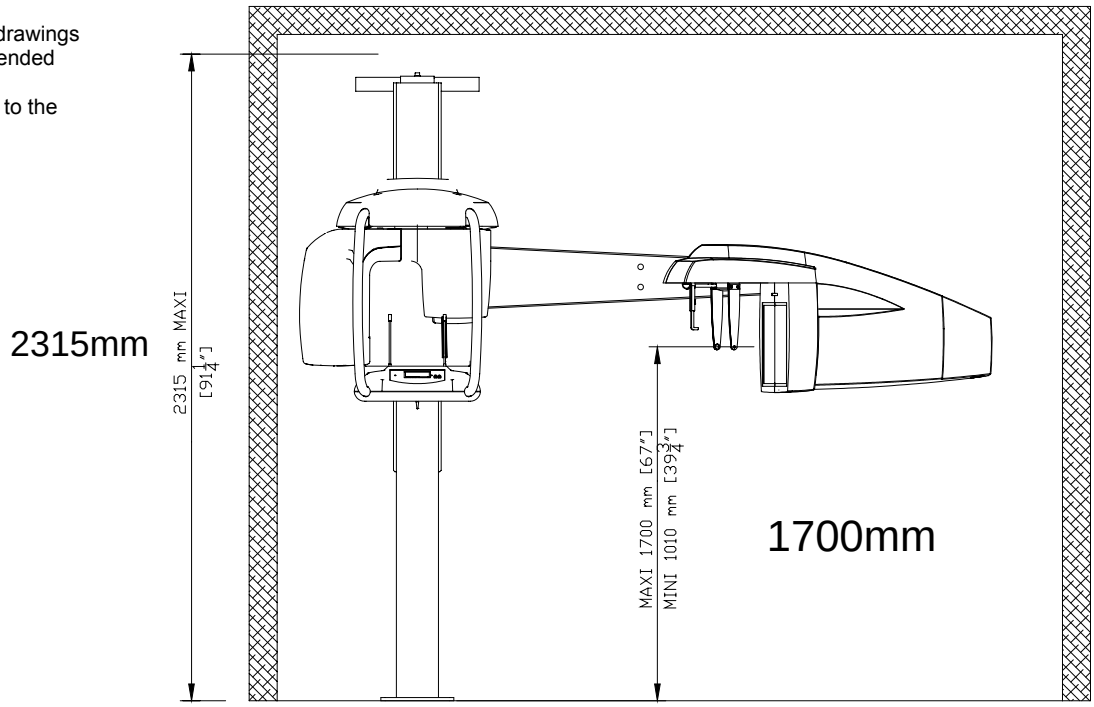
CAUTION TROPHYPAN C can not be installed in an angle**.**

Installation with a cephalometric attachment on the right side of TROPHYPAN

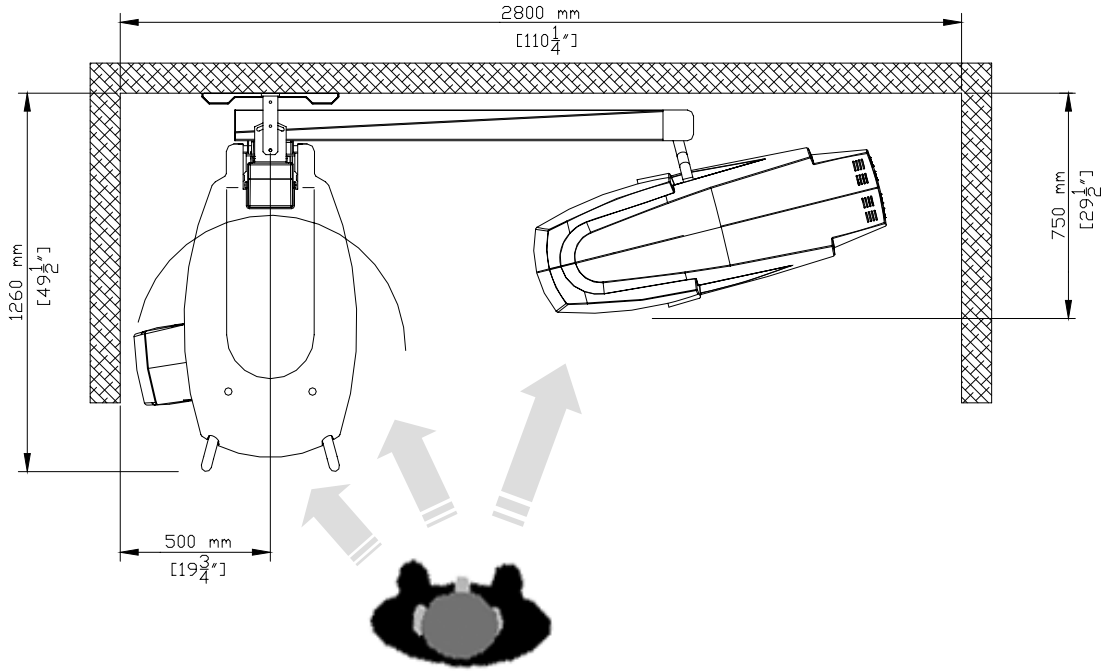
CAUTION The overall height of the unit in standard is 2315 mm (91¼''). On special request, a unit with an overall height of 2200 mm (86.6'') is available.

A/ Overall height of the unit

NOTE
These installation drawings represent recommended layouts, to allow a convenient access to the unit.

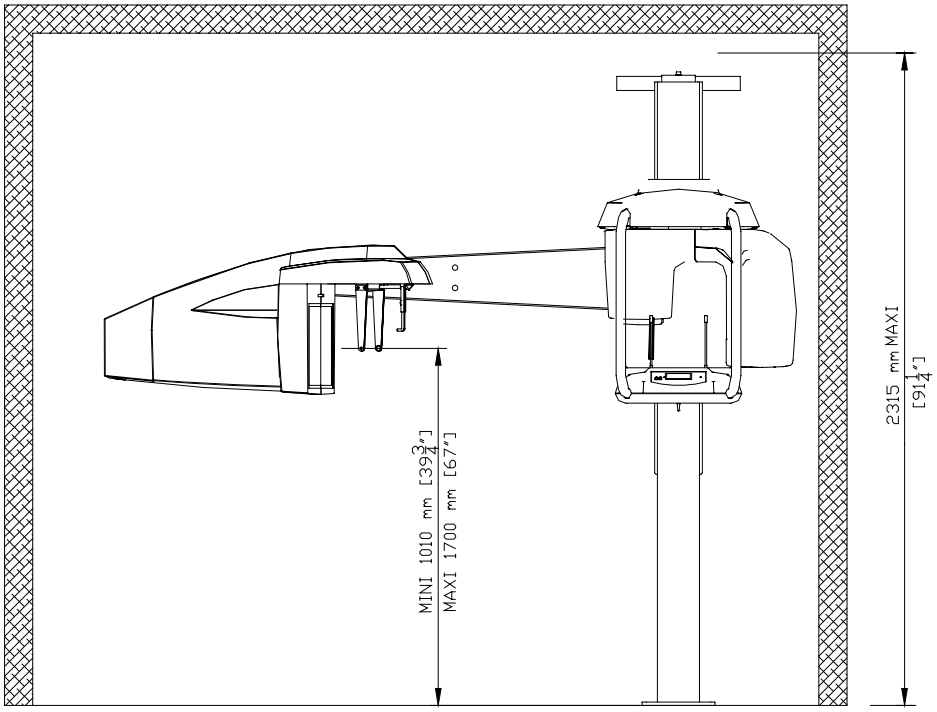


B/ Width and depth of the unit

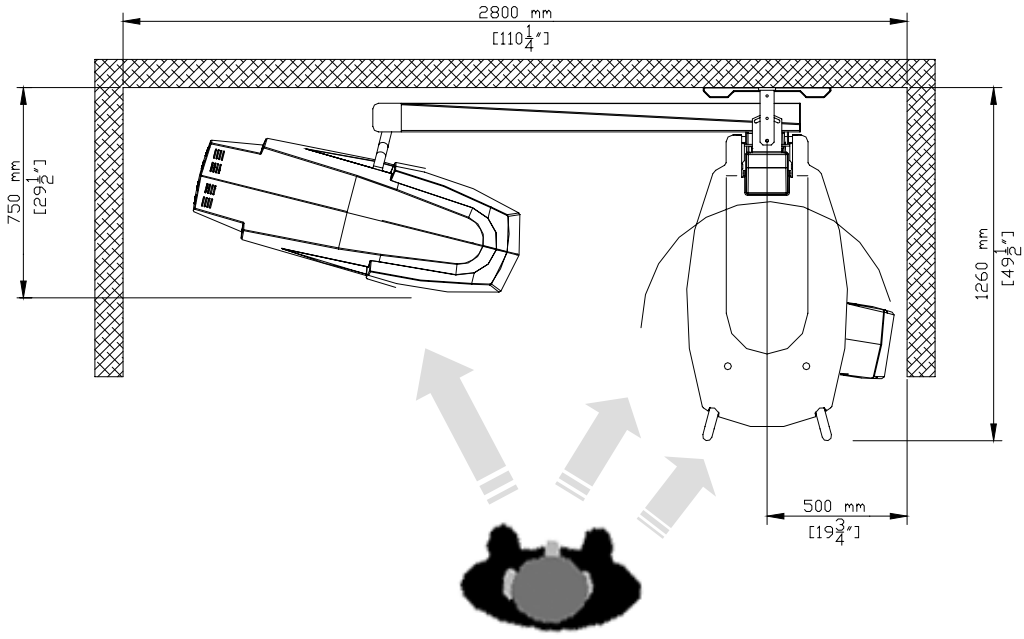


Installation with a cephalometric attachment on the left side of TROPHYPAN

A/ Overall height of the unit



B/ Width and depth of the unit



Optional base plate

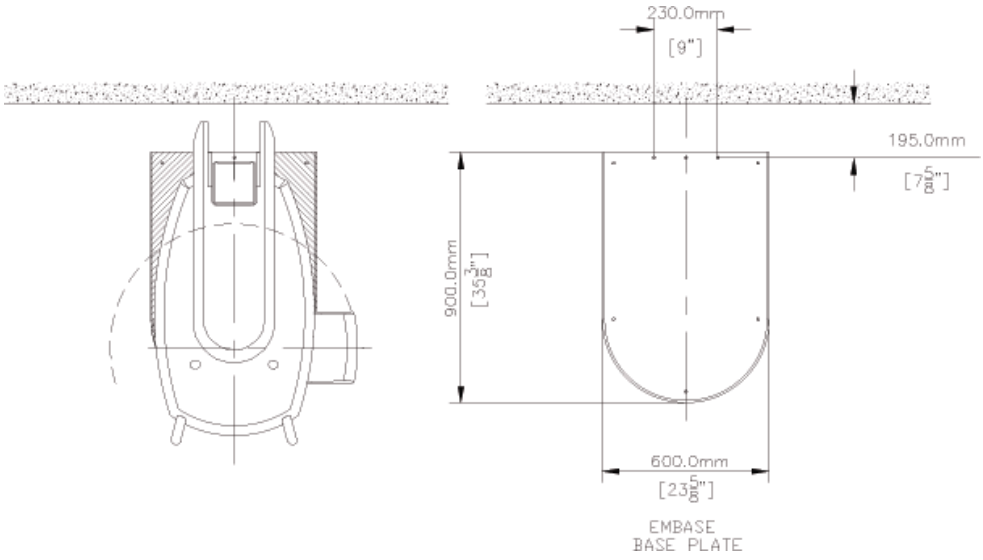
TROPHYPAN C can be installed on a base plate for installation without drilling into the floor.

If the unit on which the cephalometric attachment will be installed is already mounted on a TROPHYPAN base plate, you can reuse it.

CAUTION Wall mounting TROPHYPAN C is COMPULSORY, even if the unit is mounted on a base plate.

	Dimensions : 900 x 600
	Gross weight: 62 kg **Net weight** : 50 kg
	Reference : HR 345

Dimensions of the base plate



SECTION 2

PACKAGING

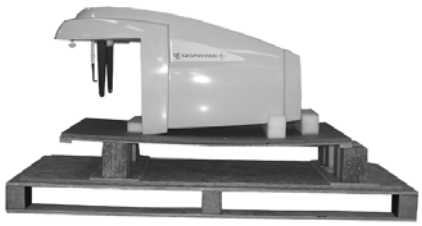
Description of the crate

	Crate: Cephalometric Upgrade Kit
Dimensions (cm)	90 (D) x 1640 (L) x 610 (H)
Weight	80 kg

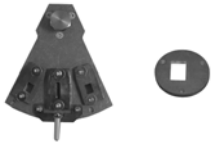
Description of the components:

Main components:

The box contains various items:

Item	Code	Description	Quantity
	/	Cephalometric attachmentt	1
	/	Cephalometric assembly	1
	HY 306	Cover of the secondary arm	1
	CG 382 + CG 383	Ear rods	2

Accessories:

Item	Code	Description	Quantity
	① HY 279 ② HY 295	Tubehead covers	2
	③ HY 275 ④ HY 276	Panoramic arm cover + panoramic sensor cover	2
	/	Panoramic Sensor's foldaway mechanism	1
	/	Primary collimators	1
	/	Frankfort laser	1
	CP 234	Sensor's switch cable	1
	CJ 648	PCI board (version 5)	1
	CJ 715	Adaptor board	1
	CJ 666	Collimators detection board	1
	CP 278	SUB D 9 / 25 adapter	1

	LO 150	Trophy Windows software	1
	/	Floppy disk for cephalometric mask file	1
	/	Screw set	1
	LP 625	Eproms (v. 2.02)	2

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SECTION 3

CHECKING THE PREMISES BEFORE INSTALLATION

Standards

Compliance with standards:
Check that the room in which the unit with the cephalometric attachment is to be installed complies with the radiological protection standards in force in the country concerned.

Mechanical

Position of the unit in the room:
Prior to placing the order and before installation, carefully check the amount of space and the position of the unit in the room.
The cephalometric arm can be placed towards the left or the right (according to the entrance side of the TROPHYPAN). The side of the arm has to be mentioned when ordering. It is impossible to change it to the opposite side on the field.

Minimum width of the door:
The width of the door must be at least 80 cm (31.5”).

Minimum height of the ceiling:
The overall height of the unit is 231,5 cm (91’’). We recommend that the minimum height of the ceiling should be 240 cm (94.5’’).

Strength of the wall:
The wall must be capable if withstanding an extraction force of 150 kPa at each point of attachment.
Depending on the type of the wall, it is the responsibility of the installer to choose a fixing system which is capable of withstanding an extraction force of 150 kPa applied to each fixing point.

Load-bearing capacity of the floor:
The load –bearing capacity of the floor should be 500kg/m².
The floor must be solid and flat.

Electrical

Required electrical specifications
Same as the TROPHYPAN requirements

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SECTION 4

INSTALLATION PROCEDURE

Tools to be provided by the installer:

NOTE
All screw fittings have metric threads.

- Metric Allen key
- Measuring tape
- Spirit level
- Round file ∅ 6 mm (0.23 in.)
- Power drill, with a ∅ 4.1 mm drill bit (1/4 in.)
- Flat spanner (#22mm)
- Soldering iron

Procedure for opening the box:

1. Remove the top cover of the packaging.
2. Remove the box of accessories and the different covers.
3. Lift off the packaging envelope.

4. Remove the cephalometric assembly with its support.
5. Remove the cephalometric arm.

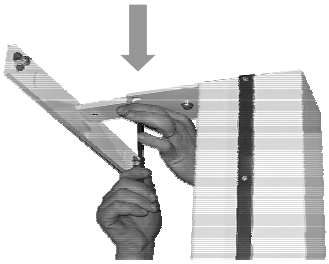
Mechanical and electrical installation

NOTE
For the THA, you mus remove first the laser buttons and the front cover. Then, remove the back cover.

First of all:

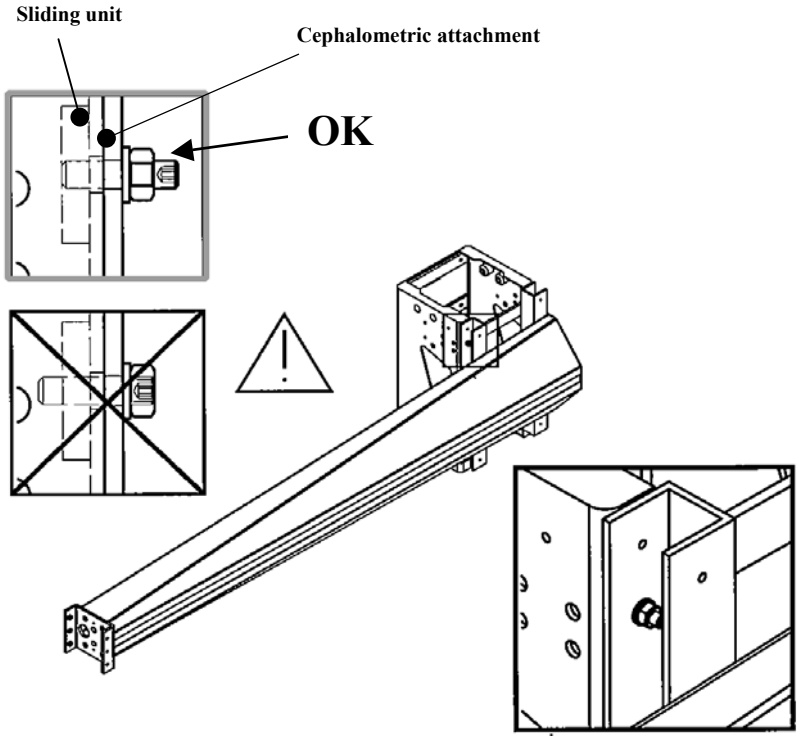
The covers of the panoramic head, the tube head, the panoramic sensor and the sliding unit must be removed.

WARNING Make sure that the fixing hole of the wall mounting bracket of your TROPHYPAN is in the farthest position from the wall.

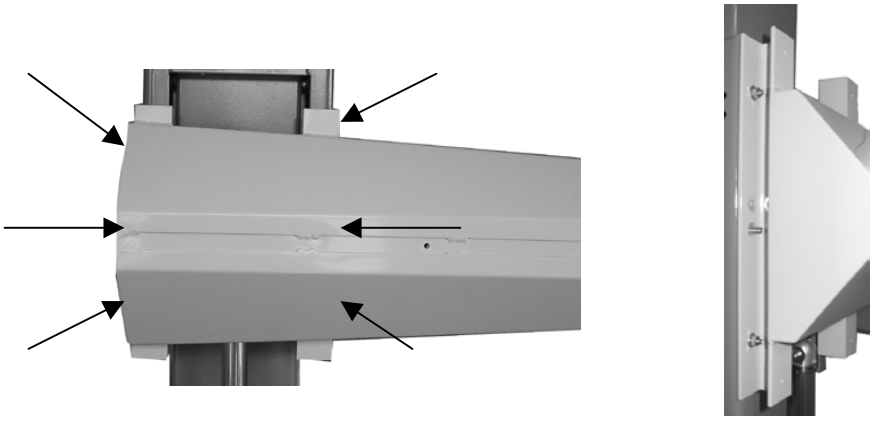


Installation of the cephalometric attachment

1. Insert the 6 setscrews at the back of the sliding unit.

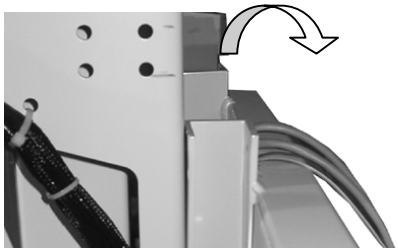


2. Install the arm on the sliding unit at the back of the column. Tighten the 6 fixing points with the nuts and flat washers.



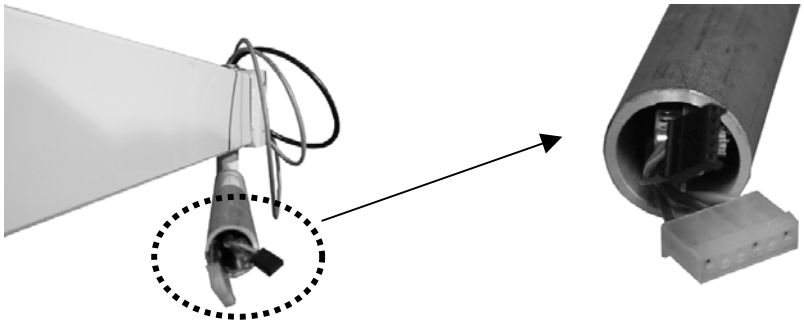
NOTE In case the fixing holes of the cephalometric arm don't fit the screws, enlarge the hole(s) just enough to mount the arm. A tighter assembly makes the final adjustment much easier.

NOTE
Extract the cables by the top of the arm.

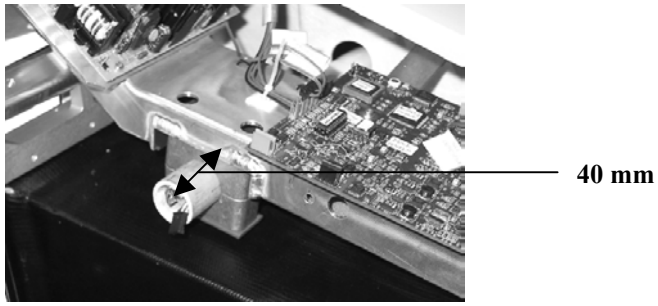


Installing the cephalostat sensor

WARNING The cables are inside the bent pipe. Be careful during the installation of the cephalostat head. Don't damage the cables or connector.
TIP: Tight the height adjustment nut at a maximum.
Tie up the cables coming out of the tube with adhesive tape and slip them into the tube.

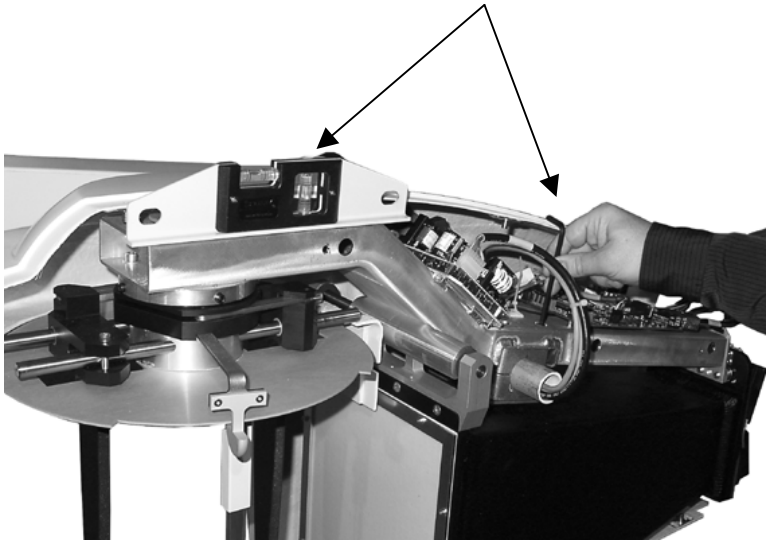


1. Position the cephalometric sensor on the bent pipe, **until it sticks out 40mm**.

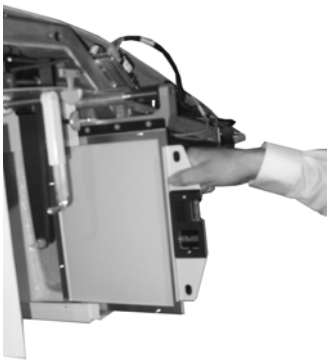


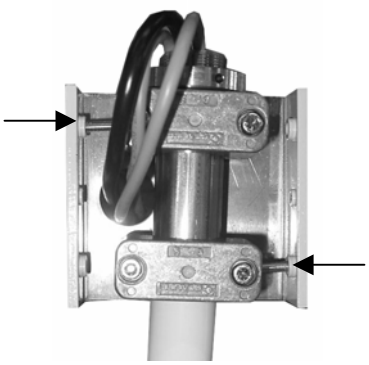
2. Using the level, check the horizontality tight crosswise the 4 screws.

CAUTION Be careful with the electronic components.



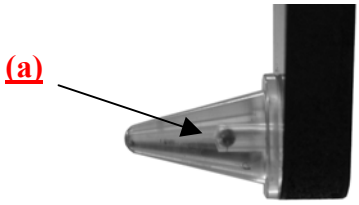
3. Adjust the verticality of the input window with the setscrews on both sides of the flanges of the cephalometric attachment.



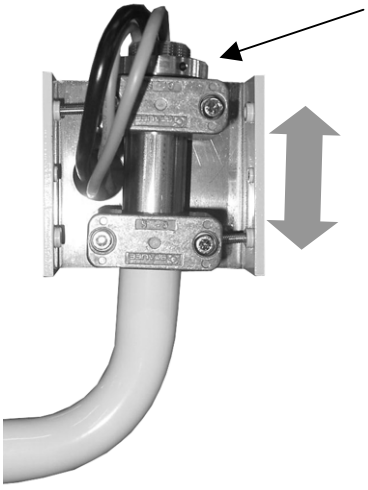


4. Place the head-support in lateral position. Mount the ear rods.

CAUTION The 2 rods are different. Ensure to mount the rod with the ball (a) on the side of the cephalometric receptor and the rod with the washer on the side of the tubehead.



5. Make a rough adjustment of the height of the cephalometric assembly by turning the adjustment ring on top of upper flange. Measure the distances between the floor and the middle of the primary collimator and between the floor and the center of the ear rods rings. If the heights are not the same, adjust again the height of the cephalometric receptor with the adjusting The height measured on the center of the ceph collimator and the height of the ear rod center must be the same.

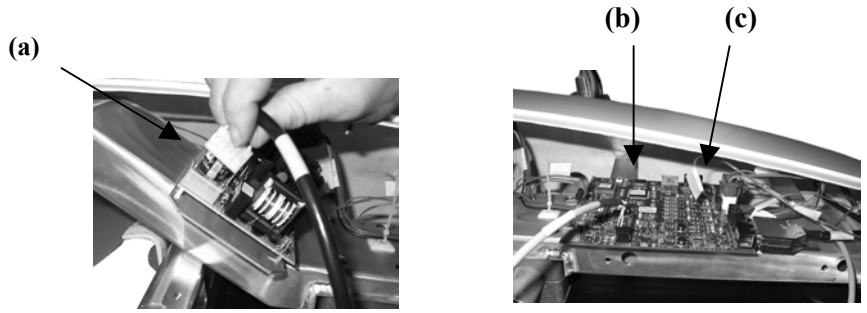


6. Feed the cables inside the pipe and:

a) Connect the cable N°44 on the LAMBDA power supply and add a ferrite.

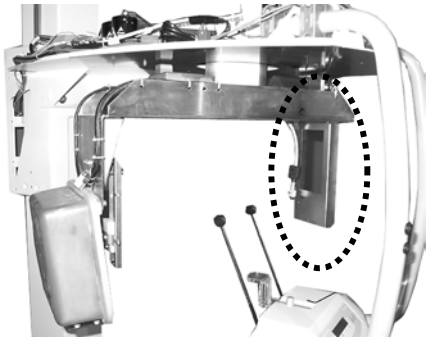
b) Connect the cable N°46 on J6 (CJ697) and add a ferrite.

c) Connect the cable N°48 on J2 (CJ697) and add a ferrite.



Modification of the panoramic sensor support

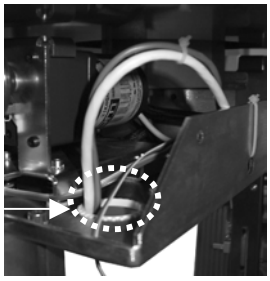
1. Remove the panoramic sensor and mounting frame.



NOTE
Leave enough cable length to connect on J17 of the CJ664 board.

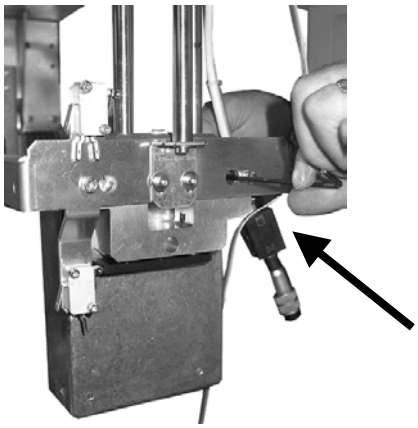
2. Remove the panoramic sensor cable and check if the cable number 38 is present.
If not, cut the plastic collar (x3) and insert the wire n°38 inside the black cable sleeve along the wire of the clock signal of the digital sensor.

3. Install the white cable protection inside the metallic hole used for the route of cables.



4. Install the new sensor's support and tight with the 2 screws.

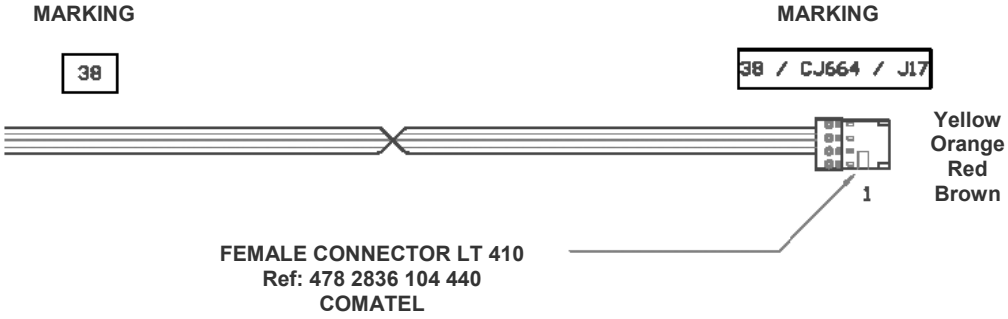
5. Install the panoramic sensor with the 3 screws.



NOTE
"Adjust the Buckle" means that the cable should move in a safety way during the support deplacement.

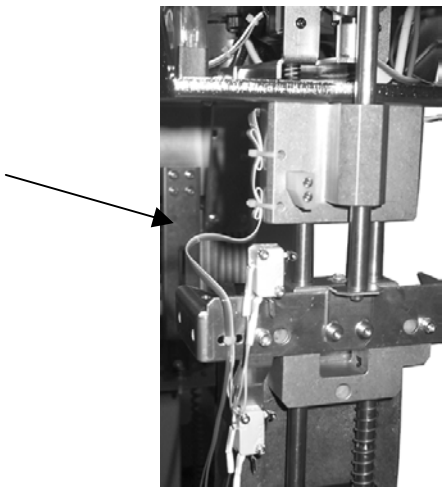
6. Connect the panoramic sensor and lower it. Install the new plastic collar and adjust the cables' position to make the movement as natural as possible during the up and down movement of the assembly

7. Connect the cable # 38 (cf. page 28) on J17 of the CJ 664 board. Solder the other end on the corresponding switch terminals.



PIN #	COLOUR	SWITCH TERMINAL	
1	BROWN	SENSOR DOWN-1	OPEN AT REST
2	RED	SENSOR DOWN-4	
3	ORANGE	SENSOR UP-1	OPEN AT REST
4	YELLOW	SENSOR UP-4	

8. Tie up the cable with the plastic collars and adjust the length of the loop to enable the movement of the sensor.

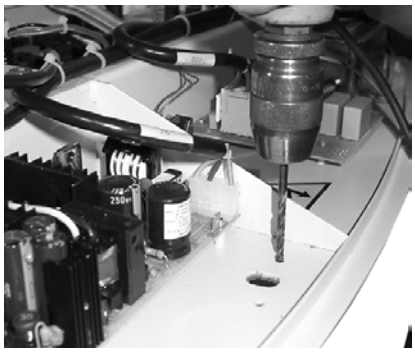


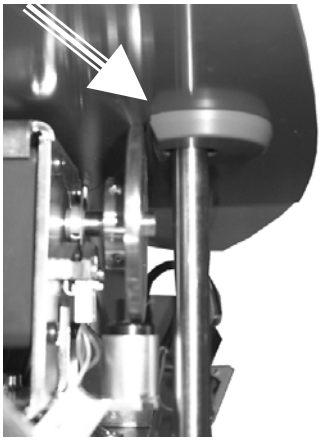
Installing the cephalostat stop bloc

1. Drill the gray track a hole in the panoramic's head on the side of the cephalometric attachment to let the rod of the sensor's stand go through it. Use a round file to clean the drilling.

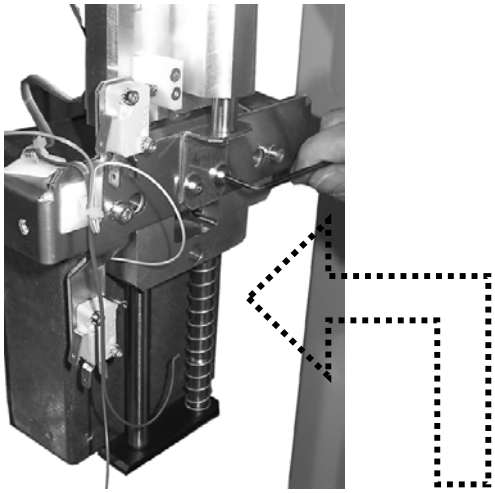
2. With a ∅ 4.1mm drill, make the holes for the stop bloc fixing screws. Install the stop bloc.

CAUTION The plane edge of the stop bloc must be placed towards the inside of the unit in order to allow the rotation.





3. Raise the sensor the support on the upper position and tighten the 2 screws of the rod support.

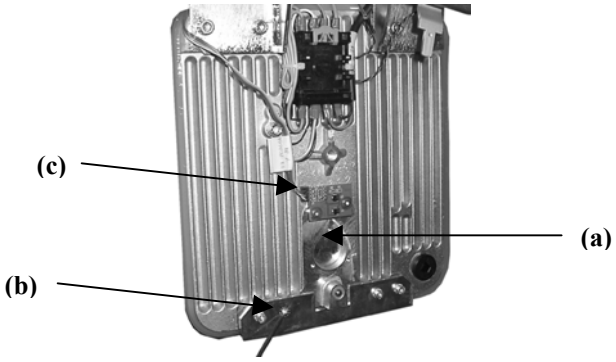


4. Check the adjustment of the setscrew on the right side of the support facing the "V" groove of one of the rods. Adjust it in order to maintain the upper and the lower position of the panoramic sensor.

CAUTION Remember that this adjustment must consider the weight of the new panoramic sensor cover (it will be installed at a later stage).

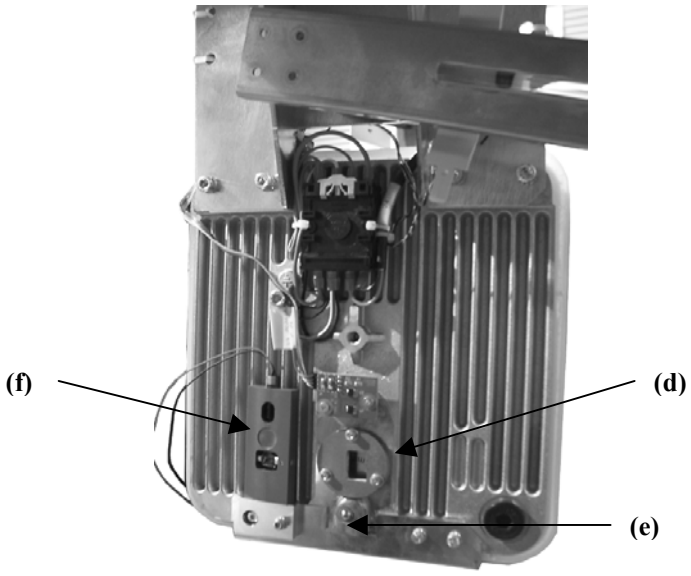
Modification of the Tube Head Assembly

1. Release the Frankfort laser (you can position it in the horizontal position for example).
2. Remove the collimator (3 pieces + 3 small spacers) (a).
3. Remove the left interior screw on the THA bracket (b).
4. Install the 2 spacers and fix the collimator detection board CJ 666. Connect cable #11 (c).



CAUTION Position the board so that the connector outlet remains on the left side.

5. Place the new primary collimator, with the window towards the right side (d).
6. Insert the stop bearing assembly (e).



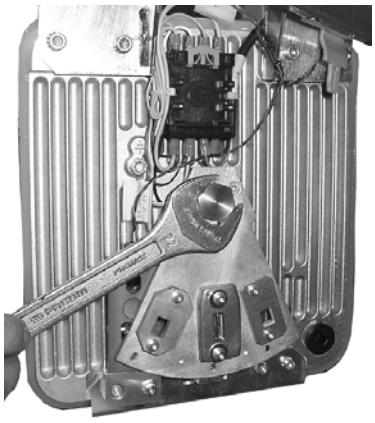
CAUTION
Protect the solderings with a thermo sleeving.

7. Install the cephalostat laser with the screw provided (the screw is longer than the one removed in §3). Solder the wires in parallel with the Frankfort laser (f).

8. Place one drop of thread locking adhesive on the fixing hole of the collimator assembly

9. Position the pre-assembled collimator assembly on the THA. Tight strongly with a ∅ 22mm flat spanner.

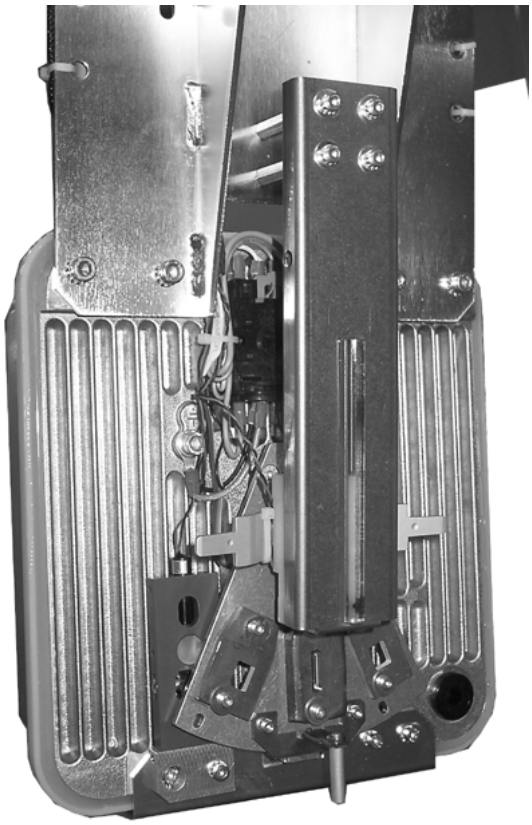
CAUTION Place the cable #11 correctly to prevent damage during the movement of the collimator assembly.



10. Place the Frankfort laser back in its initial position. Check the vertical movement and prevent the wires from touching the collimator assembly.

11. Connect the cable #11 on J16 of the CJ 664 board (cf. next page).

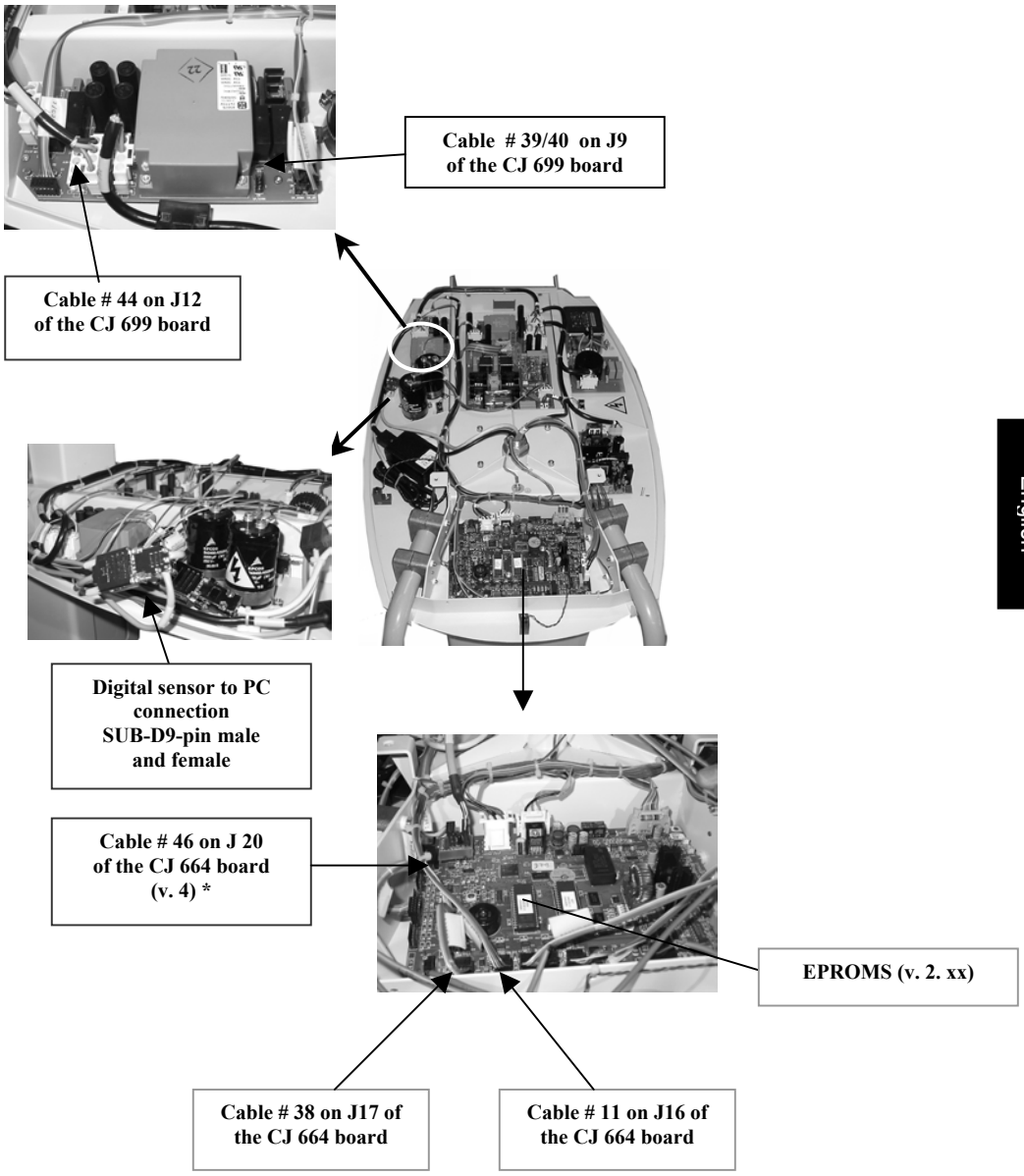
CAUTION
The Frankfort laser wires must keep the vertical movement free. Tie them on one side of the button supports, make a loop and check the movement again.



Installing the wiring to the panoramic head

Connect the different cables to the electronic boards of the panoramic head

CAUTION
Ensure that the unit is switched off and disconnected from the power supply.


Cable # 39/40 on J9 of the CJ 699 board
Cable # 44 on J12 of the CJ 699 board
Digital sensor to PC connection SUB-D9-pin male and female
Cable # 46 on J 20 of the CJ 664 board (v. 4) *
EPROMS (v. 2. xx)
Cable # 38 on J17 of the CJ 664 board
Cable # 11 on J16 of the CJ 664 board

CAUTION
The CJ664 board must be equiped with eproms of a v. 2.02 or higher. Caution while installing.

CAUTION
Check the cable close to J20 in order to minimize sporadic breakdowns.

WARNING * In case of earlier CJ 664 boards until v. 4. Place the adapter board CJ 715 on J3 and connect cable # 46 and the other cable to the adaptor board.

Installing the computer

Environnement

For details of the computer system (PC and screen), refer to the installation manuals of your microcomputer. Sufficient clear space must be left around the CPU to ensure that it is properly ventilated. In order to obtain maximum image quality and visual comfort, the screen should be positioned as so to avoid direct light reflections (internal or external lighting).

The imaging system must be inspected and checked in accordance with te standards currently in force.

TROPHYPAN has been designed to comply with European and international medical standards, therefore the computer configurations should comply with IEC standard 950.

The PC and the peripheral equipment connected to it must not be located in the immediate vicinity of the patient, thus at least at 1.5 m from the panoramic unit.

Check that the electrical system complies with the standards currently in force in the country of installation: in France, this is standard NFC 15-100.

Minimal configuration

CAUTION Trophy Windows 6.0 MUST be installed on a PC with at least **256 MB of RAM**. It is therefore COMPULSORY to check the PC configurations and, if necessary, to proceed to the update of the computer.

Microprocessor	Pentium III or equivalent
Standards	IEC 950
Hard disk	40 Go
Graphics card	Resolution 1024 x 768 – 24 bits
RAM (Random Access Memory)	**256 MB**
Operating system	Windows 2000 and XP
Type of PC	Multimedia
Available hardware slots	One PCI slot + One RS 232 serial communication port
Drivers	CD-Rom + floppy disk
Data backup system	High capacity magnetic medium

Installing the PCI acquisition board in the computer

Description

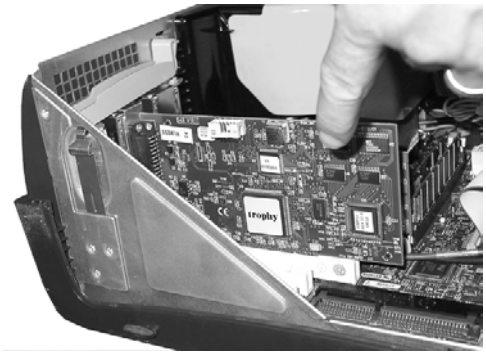
CAUTION
Before carrying out any technical work on the computer, ensure that it is switched off and disconnected from the main power supply.

Supported Operating systems include Windows 2000 et XP. So Administrator access is required for the complete installation and configuration procedure.

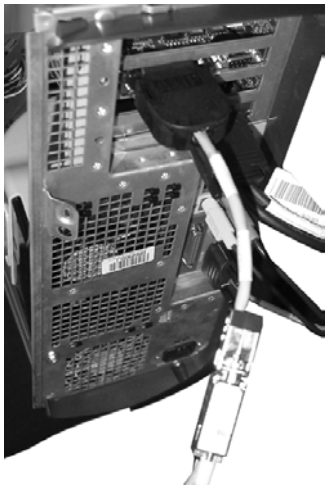
Step by Step instructions

CAUTION
The board must be installed by an approuved Trophy technician.

1. Install the PCI board (CJ 648 v6) in a free slot.



2. Connect the RS 232 cable (COM 1 or 2) and the RS422 cable (PCI board on the SUB D 25 connector). Use the SUB D 9 / 25 adapter.



3. Boot the PC. Wait while Windows detects the presence of a new board.

CAUTION At this stage of the installation procedure, the CD-ROM must not be in the CD driver.

4. Cancel the installation procedure of the new board and go directly to the software installation which forces the drivers' installation.

English

Trophy Windows Installation / Update

Start the installation programme

1. Insert the Trophy Windows CD-Rom in the CD-Rom drive.

2. Wait for the installation program to start. If the autorun does not work, click on the Start button, then select Run and enter the following command line D:\setup.exe (D is the letter assigned to your CD-Rom drive and can be different depending on your configuration).

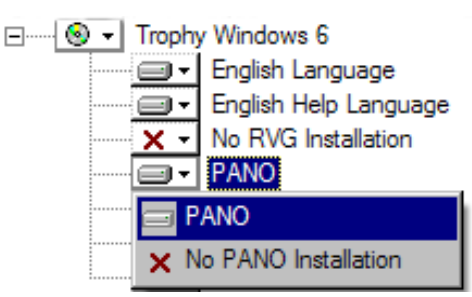
3. Choose the installation language.

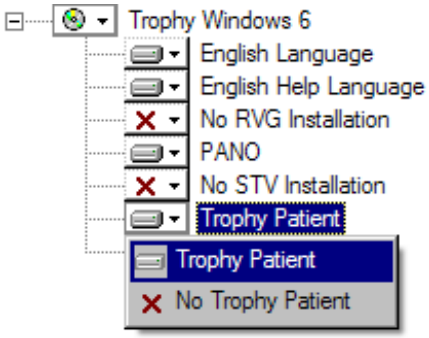
4. Accept the license Agreement.

5. Select “PANO” to specify the material for which the software is installed.

WARNING Don’t forget to select “PANO” !!!

NOTE In case of a 1st Trophy Windows installation, the « Trophy patient » option is also proposed**. Select this option**.



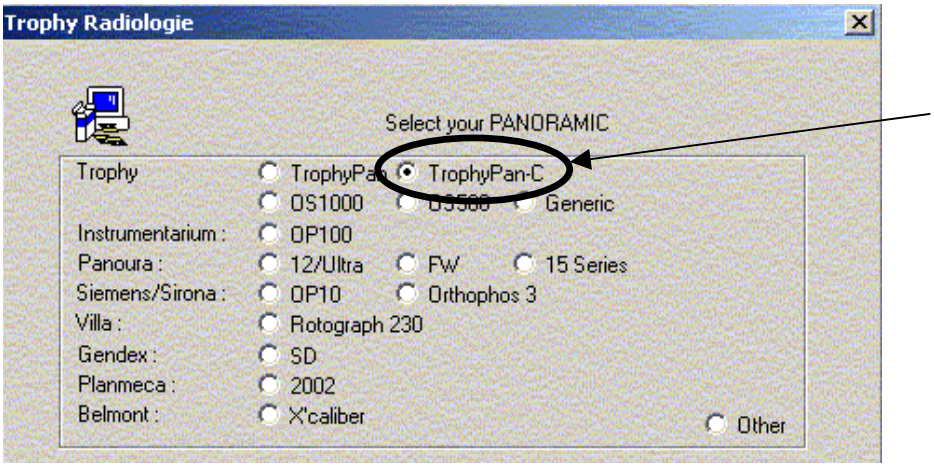


6. Click «Next» to start the Trophy imaging software installation.

7. Follow the instructions until the end of the installation.

NOTE When you reach the window «Choose your installation …», select «1st installation» by default.

8. Select now “TROPHYPAN C” as the name of the panoramic unit.



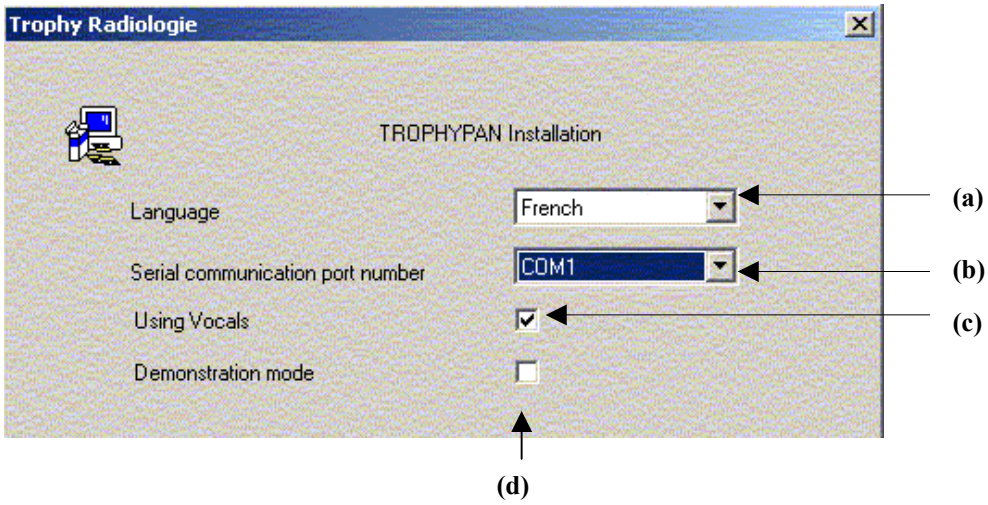
9. A new configuration window is displayed :

Choose :

a) the required language for the graphic interface and vocal assistance

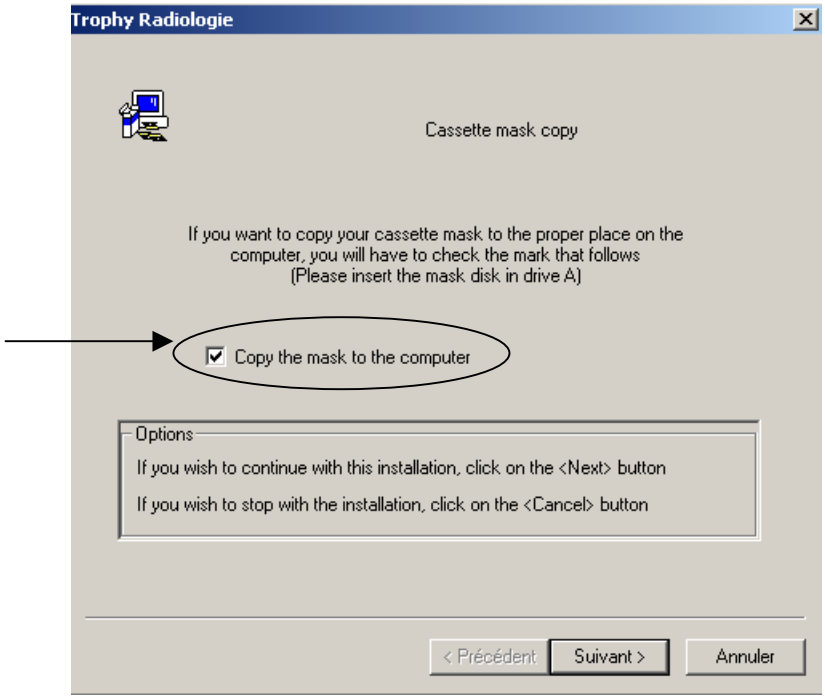
b) the number of the serial port on the PC to which the link for the unit is to be connected

c) activation of vocal mode (voice assistance). This option can be modified while the software is in use



CAUTION The demonstration mode is solely intended for commercial use. Activation of this mode disables any communication with the unit and, as a result, prevents the image acquisition.
Do not activate this mode for an on site TROPHYPAN C installation.

10. When you will reach the window proposing the installation of the mask files, follow the instructions.


Trophy Radiologie
Cassette mask copy
If you want to copy your cassette mask to the proper place on the computer, you will have to check the mark that follows
(Please insert the mask disk in drive A)
Copy the mask to the computer
Options
If you wish to continue with this installation, click on the <Next> button
If you wish to stop with the installation, click on the <Cancel> button
< Précédent
Suivant >
Annuler

CAUTION The mask files are saved on floppy disks. Take care to insert the right floppy disk properly in the driver when asked to do so.

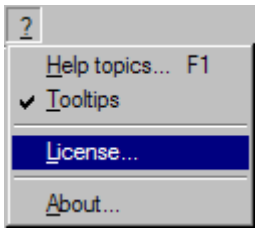
11. Finish the installation and restart your computer.

The installation of TROPHYPAN C is now complete. For more information, refer to the TROPHYPAN C and Trophy Windows user manuals. A detailed online Help function is also available at any time from Trophy Windows.

NOTE To add Trophy equipment at a later date, you only need to restart the installation program of Trophy Windows, to select "Modify" in the screen that appears and to choose the correct option(s) in the menu. The drivers for the new equipment will then be installed. For any further information please refer to the installation manuals of your Trophy equipment.

NOTE To use the software on a network, you have to install the software on all the workstations. The database path needs to be specified in the patient file. Enter the network path in the "**Options", "Preferences", "Patient File"** menu, e.g.: //server-name/database-path/.

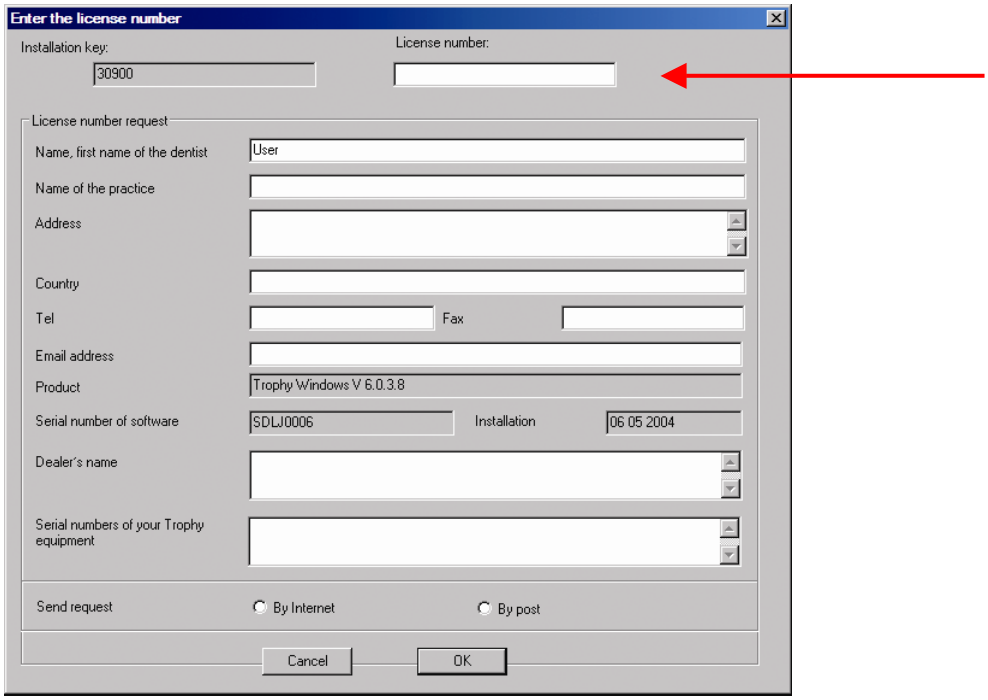
Trophy Windows License



After installation of Trophy Windows 6 **you will have 30 days to register the software**. You can use the software with all its functionality for **a period of 30 days**. Once this delay has elapsed you will not be able to acquire any new images, the visualization and manipulation of images however will still be possible.

To enter the license number and obtain an activation key, you need to:

Launch Trophy Windows 6, select a patient at random and launch the imaging module. In the imaging module, select the ? menu and click on License… The window below will open, allowing you to enter the necessary information for the activation of your software.



The serial number of your Trophy Windows software is automatically inserted in the form, as well as the version of the software. You can also find the serial number on your CD-Rom of Trophy Windows 6. The installation key is automatically generated based on your serial number and the computer you install the software on.

Please complete all the fields of the form!

NOTE You can install the software on a maximum of 5 different computers using the same serial number. Each computer will generate its own installation key that you need to transmit to the Trophy licensing department. To install additional computers (beyond 5) you will have to order a license upgrade CD-Rom, each upgrade will allow you to install an additional 5 computers.

NOTE When upgrading or re-installing your Trophy Windows software you will need to activate the licenses again and request new license numbers for those computer(s).

To transmit the information you can select between transmission through the Internet or by post/fax. You will quickly receive the license number by email, fax or post, which you need to enter in the field marked by an arrow above to completely activate your software.

If you select **Send by Internet** an email will be created containing the data you have entered. You only need to send the email to:

sales@trophy-uk.com (for the UK)

or

license@trophy-imaging.com (international)

If you select Send by post a form containing the data you have entered will automatically be printed on the default printer defined in Windows. This will allow you to:

- either send the form **by post** to the following address:

Trophy Radiology UK LTD
One Rochester Court
Medway city estate - Rochester
Kent ME2 4NW
United Kingdom

or

Trophy Radiologie
License service
4 rue F. Pelloutier
Croissy-Beaubourg
77437 Marne la Vallée Cedex 2
France

- either **fax** the form to the following number:

+44 634 73 12 55 (for the UK)

or

+ 33 1 64 80 84 99 (international)

For all questions related to the activation and license of your Trophy Windows 6 software, you can contact your Trophy certified dealer.

Equipment configuration

1. Start Trophy Windows.

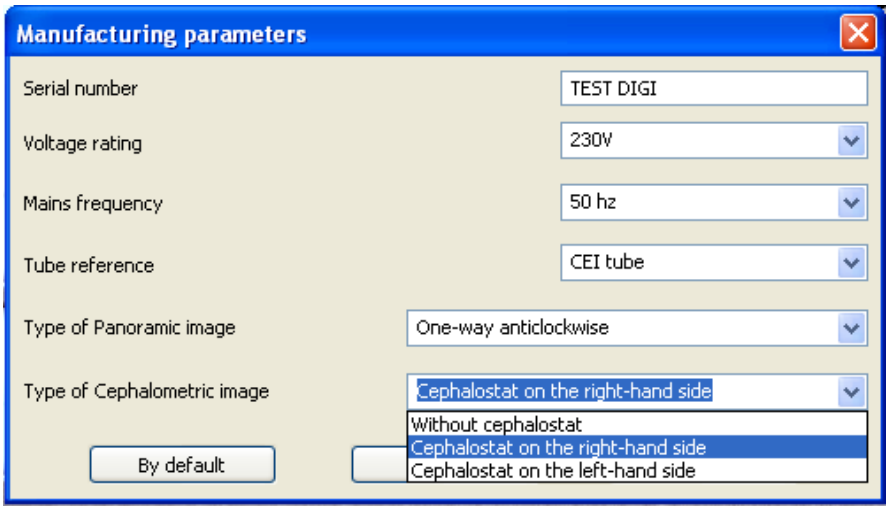
2. Start the TROPHYPAN interface in technical mode (cf. TROPHYPAN Service Guide).

3. Select the panoramic acquisition icon.

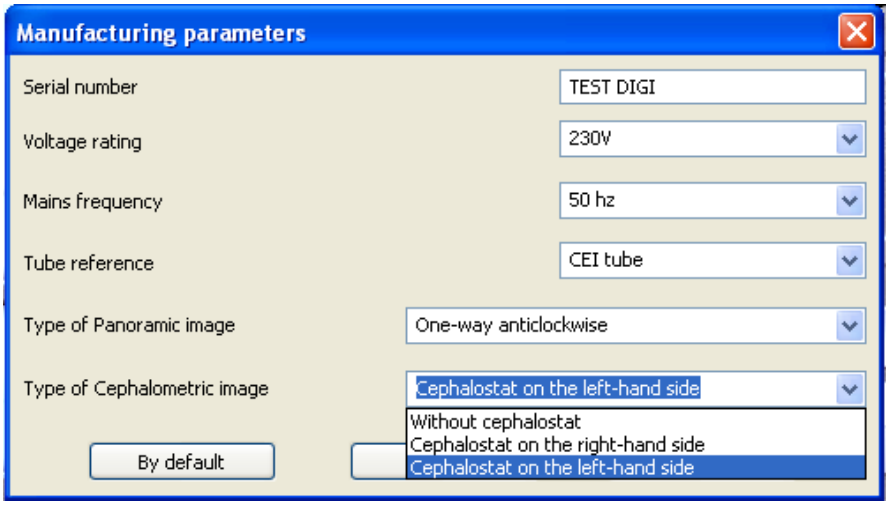
4. Click on «Information », «Manufacturing Parameters».

5. Select the type of cephalometric equipment installed (left or right-side cephalometric attachment).

- For a cephalometric attachment installed **on the right side of the unit**, select the option “Cephalostat on the right-hand side”:



- For a cephalometric attachment installed **on the left side of the unit**, select the option “Cephalostat on the left-hand side”:



6. Save and close the menu.

7. Leave the TROPHYPAN interface.

Post-Installation checks

Proceed initialy ro the settings for the panoramic side (cf. TROPHYPAN Installation Guide - section 4).

CAUTION Ensure that the unit is switched off and disconnected from the power supply.

Panoramic post installation checks

WARNING. The technician must comply with the standards currently in force while installing and using the radiology unit.
Whenever necessary, he must use a shield or wear a lead-lined apron.

The unit must be switched off before the covers are removed.
Any work which has to be carried out on the unit while it is switched on and while the covers are removed must be undertaken by an approved Trophy technician. Unqualified persons must not approach the unit.

1. Acquire an image using the ball phantom supplied with the unit. Remove the bite block. Position the ball phantom and check that the graduated scale on the chin rest is set to the '0' position.

2. Check that the sagittal-median and canine lasers intersect perpendicularly on the central ball of the ball phantom. Check that the laser of the Frankfurt plane is perpendicular to the centerline of the digital sensor.

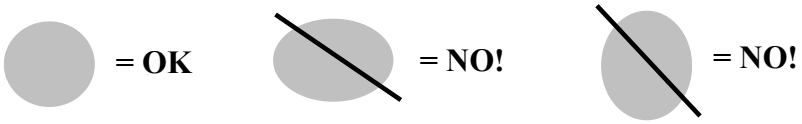
If the lasers are not correctly aligned, refer to the Service Manual.

3. Acquire a panoramic image at 60 kV, 2 mA.

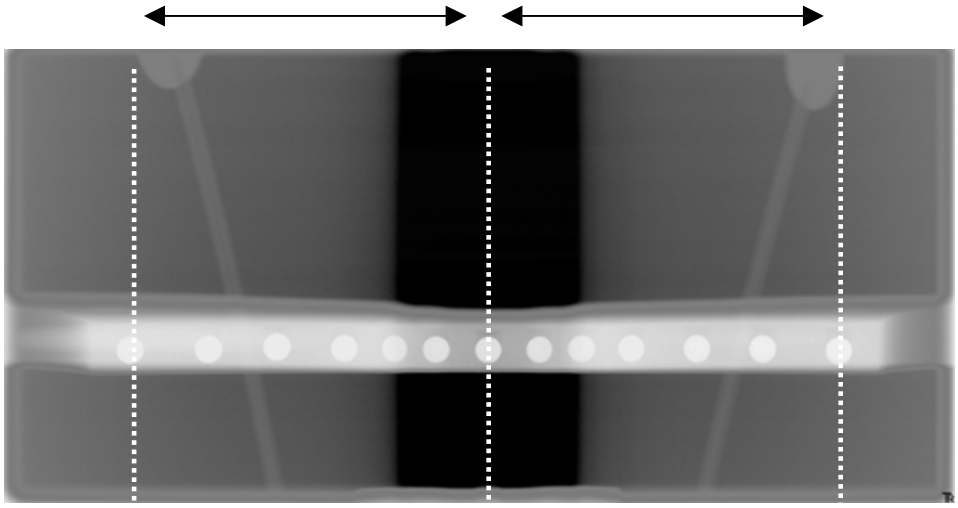
4. On the image (refer to the diagram below), check:

- the size of the balls

- the circularity of the balls. The circularity of the central ball is the most important feature to be checked.



- the right / left symmetry.

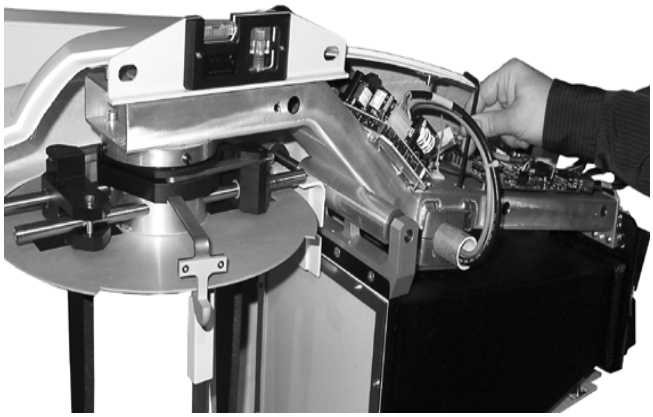


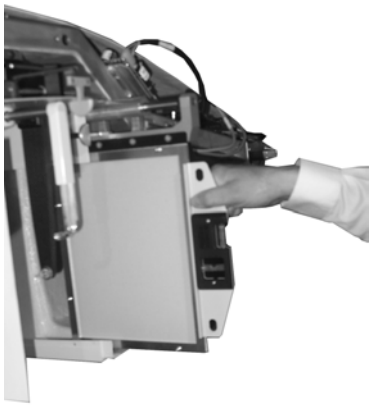
5. If the results of the checks on the screen are satisfactory, the unit is ready for use and the installation is complete.

If the results of any of these checks are unsatisfactory, refer to the **Service Guide** in order to identify the causes of any problems.

Cephalometric sensor alignment and fixed collimator

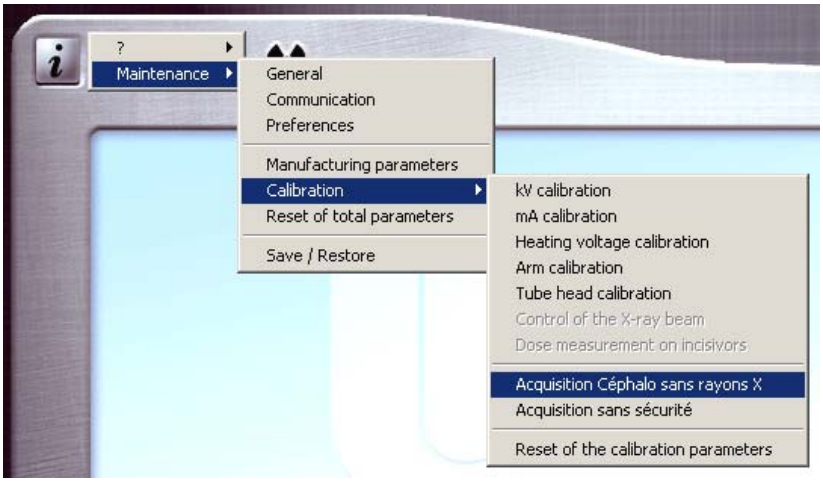
1. Check (and eventually adjust) the horizontality and the verticality of the sensor using a spirit level.





2. Select the “Ceph acquisition” mode.

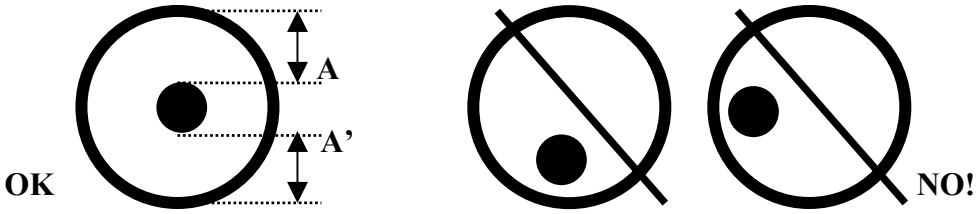
3. Choose the acquisition mode “Acquisition without security” in the “Information”, “Calibration” menu.



4. Position the tubehead in the position for a ceph acquisition. Turn the collimator assembly away from the X-ray field. Position the cephalometric sensor and the ear rods in lateral position and leave the rods opened half way.

5. Make an exposure using the following radiological constants : 60kV, 4mA, 0.5s

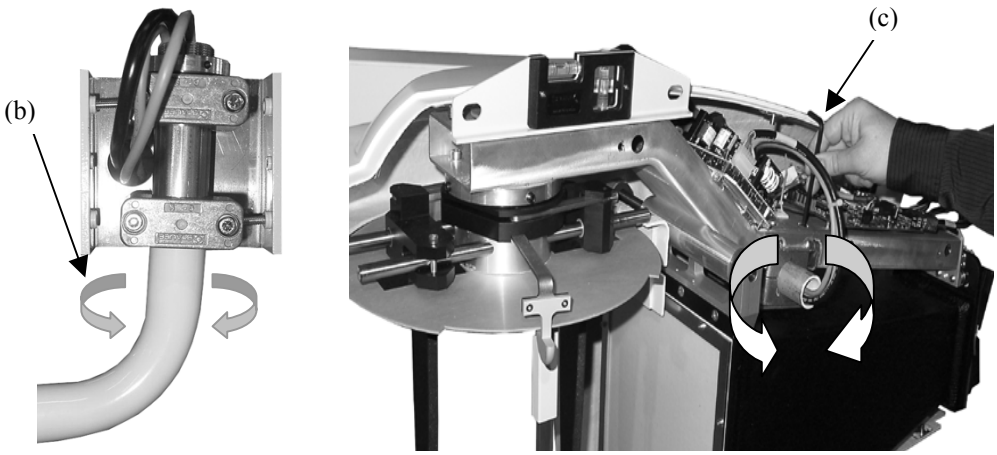
6. On the image, check that all images of the ear rod rings are concentric. The distance between A et A’ shall be in a tolerance of +/- 0.5 mm.



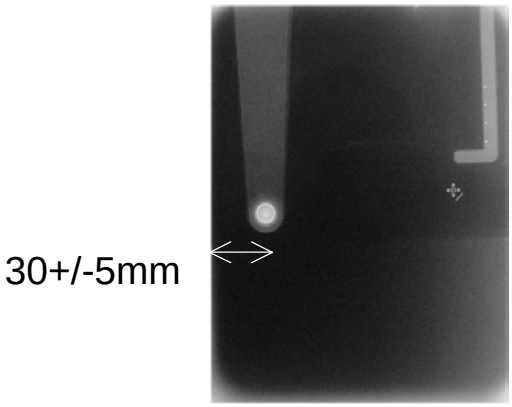
7. Adjust the ceph sensor to obtain the alignment of the 2 ear rods.

- Horizontal adjustment: modify slightly the angle of the cephalometric sensor in relation to the primary arm (b).

- Vertical adjustment: modify slightly the angle of the receptor in relation to the secondary arm to position the ball in the ring (c).



8. Check the position of the ear rods on the lateral ceph image.
With the cephalometric measurement tool in Trophy Windows, check that the rods are at a distance of 30 mm +/- 5mm from the edge of the image.



9. Check the surface covered by the X-rays (X-ray field of the fixed collimator).
Check on the image that the fixed collimator is not visible on the image. Start a new image acquisition in frontal (symetric) mode.
If a white edge appears, move the cephalometric sensor on the horizontal tube until it disappears and realign the ear rods again.

Aligning the laser

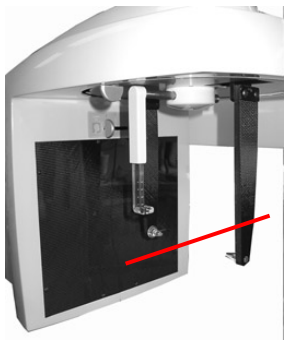
1. Position the collimator on the « lateral ceph » position.

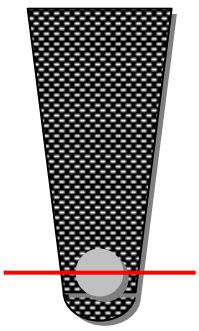
2. Switch on the Frankfort laser.

3. Position the cephalometric ear rods in lateral position.

4. Check that the beam is centered on the ring of the ear rod. If the centering is not good, adjust the beam on the tubehead.

- Vertical position: loosen the set screw on the mirror and turn it until it is centered on the ring. Tighten the screw.
- Horizontal position: untight the fixing screw of the laser block and adjust the set screw on the opposite side until the beam is horizontal.
- Focus: Remove the laser from the bloc and turn the lens until the line is fine enough.





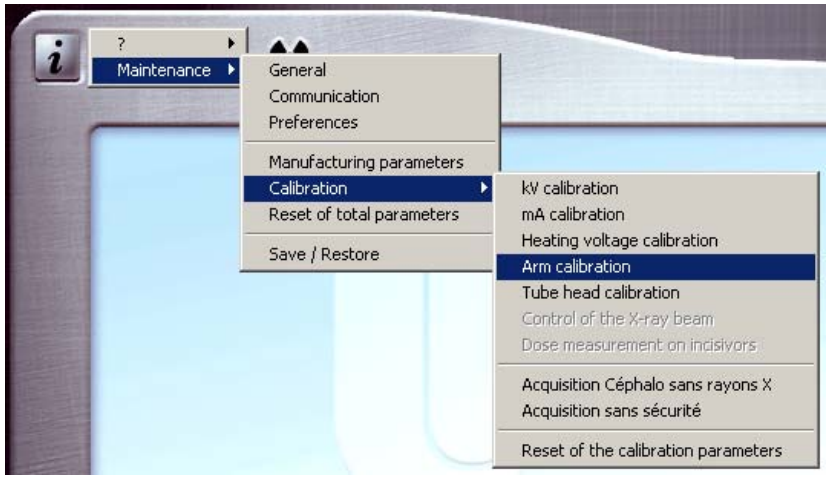
Adjusting the collimators (lateral and frontal)

1. For each type of image, select the the proper collimator.
2. Acquire an image at 60kV, 4mA and 0.5s
3. Check and adjust the collimator in order to obtain a white area (whiter gradation) all around the image.

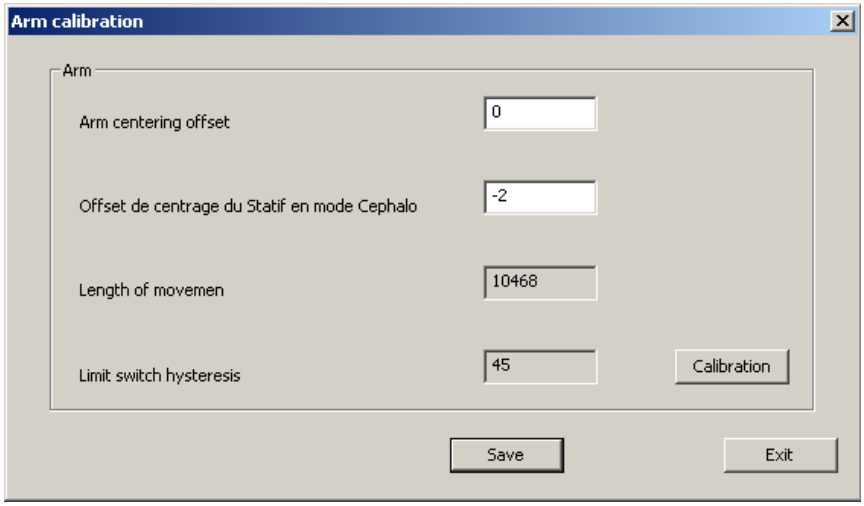
CAUTION As the lead is a soft metal, do not crush it while tightening.

Adjusting the rotation arm

1. Select the mode «Cephalometric acquisition »
2. Choose the mode «Acquisition without security» in the menu “Information”, “Calibration”.



3. In the window “Arm calibration”, adjust the parameter « Ceph centering offset » (between –10 and 10) in order to place the rod of the sensor aligned with the stop bloc after each movement reset in the ceph acquisition mode. Once the good value is found for the alignment, save and exit the menu.



Fitting the covers

1. Fit the end cover on the secondary arm

2. Fit the front cover of the cephalometric sensor .

3. Fit the back cover of the cephalometric sensor.

4. Install the carbon plate on the front side of the cephalometric sensor

CAUTION The plate has a way of positioning. Make sure that the logo is always positioned on the arm side.

Position of the plate for a ceph on the left side	**Position of the plate for a ceph the right side**

5. Fit the new cover for the panoramic sensor.

CAUTION Check again that the set screw for the adjustment of the panoramic sensor has been properly tightened. If the sensor doesn't keep the upper position, tighten this setscrew.

6. Fit the arm cover.

CAUTION Install this cover with care to prevent damages to the sensor cover or to the patient head holders.

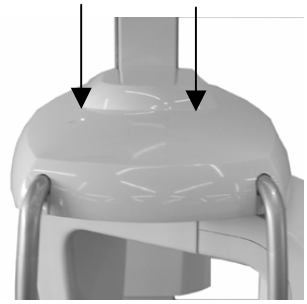
7. Fit the back cover of the tubehead.

8. Fit the front cover of the tubehead and position the adjusting knobs of the Frankfort plane.

9. Check the motion of the laser and collimators.

10. Install the cover of the sliding unit.

11. Fit the top cover of the panoramic unit.



12. Position the top cover on the column.

13. Install the cover of the electrical junction box.

14. Check that all screws in the wall and the floor have been tightened.

15. Connect the power supply to the panoramic unit.

SECTION 5

TECHNICAL SPECIFICATIONS

General technical specifications

Product identification	Digital Panoramic & Cephalometric Radiology Unit, controlled from a PC interface. Face-to-face positioning	
Digital sensor	**Pano:** CCD + optical fiber sensor **Ceph:** CCD sensor	
Dimensions of the matrix	**Pano:** 2,500 x 1,244 pixels **Ceph:** 1840 x 1360 pixels	
Gray scales	4,096 – 12 bits	
Image field	**Pano:** 6.5 x 126 mm **Ceph:** 196 x 260 mm	
High tension generator	140 kHz (max.) 60 – 90 kV 2 – 15 mA	
Line voltage	230-240 V / 50 Hz , 230-240 V / 60 Hz 110 – 130 V / 60 Hz	
Focal spot of tube	0.5 mm (IEC 336)	
Total filtration	> 2.5 mm eq. Al	
Anode voltage	90 kV max.	
Cathode current	15 mA max.	
Imaging procedures	Panoramic Segmented panoramic Maxillary sinus Lateral TMJ, 2 sections Lateral TMJ, 4 sections Lateral cephalometric AP-PA cephalometric Oblique cephalometric Submento-vertex image Carpus image	
Period of exposure	Adult panoramic: Pediatric panoramic: Maxillary sinus: Lateral TMJ, 2 sections: Lateral TMJ, 4 sections: Cephalometric images:	13.9 sec. 13.2 sec. 10.7 sec. 4.6 sec. 9.2 sec. 0.1 x 3.2 sec.
Exposure mode	2 programs (adult and child) 3 sizes (adjustable by the user)	

Magnification	**Pano :** x 1.27 **Ceph :** x 1.15
Space requirements	**TROPHYPAN:** 1500 (L) x 1950 (P) x 2400 (H) mm* **TROPHYPAN C:** 2800 (L) x 1950 (P) x 2400 (H) mm*
Weight	**TROPHYPAN :** 120 kg **TROPHYPAN C:** 145 kg

*** On specific request, a unit with a shorter overall height of 2200 mm (86.6'') is also available.**

International standards

Electromagnetic compatibility

With regard to EMC, this product complies with European Directive 89/336/ CEE.
This product complies with European Standard EN 60601-1-2.
Its classification is Group I, Class B.

Conforming to IEC Standards 601.2.7 and 601-1

Manufacturer:

TROPHY
4, rue F. Pelloutier, Croissy-Beaubourg
77437 Marne la Vallée Cedex 2, France

Model:

TROPHYPAN, radiographic dental diagnostic unit, IEC 601.2.7,
Class 1, Type B, Intermittent Operation,
with protection against X-rays complying with IEC 601.1.3.

Ambient operating conditions

Temperatures	5 ~35 °C
Relative humidity	30 ~ 85%
Atmospheric pressure	700 ~ 1060 hpa

Storage conditions

Temperature	–10 ~ 60 °C
Relative humidity	10 ~ 95%
Atmospheric pressure	700 ~ 1060 hpa

Transport conditions

Temperature	–10 ~ 60 °C
Relative humidity	10 ~ 95%
Atmospheric pressure	700 ~ 1060 hpa

Type of electrical power supply:	**230 – 240 V (± 10%) 50/60 Hz, single-phase**	**110 –130 V (± 10%) 60 Hz, single-phase**
Apparent resistance of the power supply circuit	0.5 Ω (max.)	0.12 Ω (max.)
Permanent absorbed current	0.45 A	0.9 A
Current absorbed during the X-rays emission	9.5 A	17 A
Max. absorbed power	2.2 kVA	1.9 kVA
Protection for the power supply system	By shutter release at a max. current of 16 A and a differential current of 30 mA	By shutter release at a max. current of 20 A and a differential current of 30 mA
Nominal high tension	90 kV	90 kV
Maximum corresponding tube current	10 mA	10 mA
Nominal tube current	15 mA	15 mA
Maximum corresponding high tension	80 kV	68 kV
Tube current/voltage combination for maximum output power	80 kV, 15 mA	85 kV, 12 mA
Nominal power for an exposure time of 0.1 s.	at 80 kV, 15 mA: 1200 W	at 85 kV, 12 mA: 1020 W

Operating rate in continuous mode (for example: one exposure – 85 kV, 5 mA – 13.9 sec every 3 minutes)	33W
Operating rate in intermittent mode (for example: one exposure – 80 kV, 15 mA – 13.9 sec every 3 minutes)	93 W

Selection of the load parameters:	
kV (in increments of 1 kV)	From 60 to 90 kV
mA (in increments of 25%)	From 2 to 15 mA

Cooling conditions:	
Maximum dissipation of heat from the X-ray radiogenic assembly into the ambient air (for a utilization rate in continuous mode):	70 W

Details of the load parameters:	
High tension:	kV ± 10%
Current in the tube:	mA ± 20%
Exposure time:	seconds ± (10% + 1ms)

Measurement conditions:	
KV	Indirect on the peak kilovoltmeter
MA	Direct measurement in the circuit using an oscilloscope
Exposure time:	Measurement at 75% of the kV values

Characteristics of the X-ray radiogenic assembly

Conforming to IEC Standard 601.1.3

IEC Standard 601.1.3	Compliant
Nominal value of the inherent filtration at 70 kV	2.5 mm (0.11") eq. Al
Nominal value of the supplementary filtration at 70 kV	Not applicable
Nominal value of the total filtration at 70 kV	2.5 mm (0.11") eq. Al
Filtration value for the enclosure of the radiogenic unit (at 100 kV)	0.2 mm (0.08") eq Al
Filtration value for the enclosure of the image receiver unit (at 100 kV)	0.2 mm (0.08") eq Al
Filtration value for the sensor case	0.8 mm (0.31") Al
Value for the arms of the head clamp (at 100 kV)	1.0 mm (0.039") eq Al
Distance between the focal spot and the sensor	522 mm (20.55")
Location of the reference axis	*Refer to the diagram below*
Size of the beam at the sensor	6.5 x 126 mm
Radiation leakage after one hour's operation *(maximum utilization rate of 93 W, i.e. 90 kV , 10 mA , 13.9 sec. every 2 minutes 15 sec.)*	< 1 mGy

Conforming to IEC Standard 601.2.28

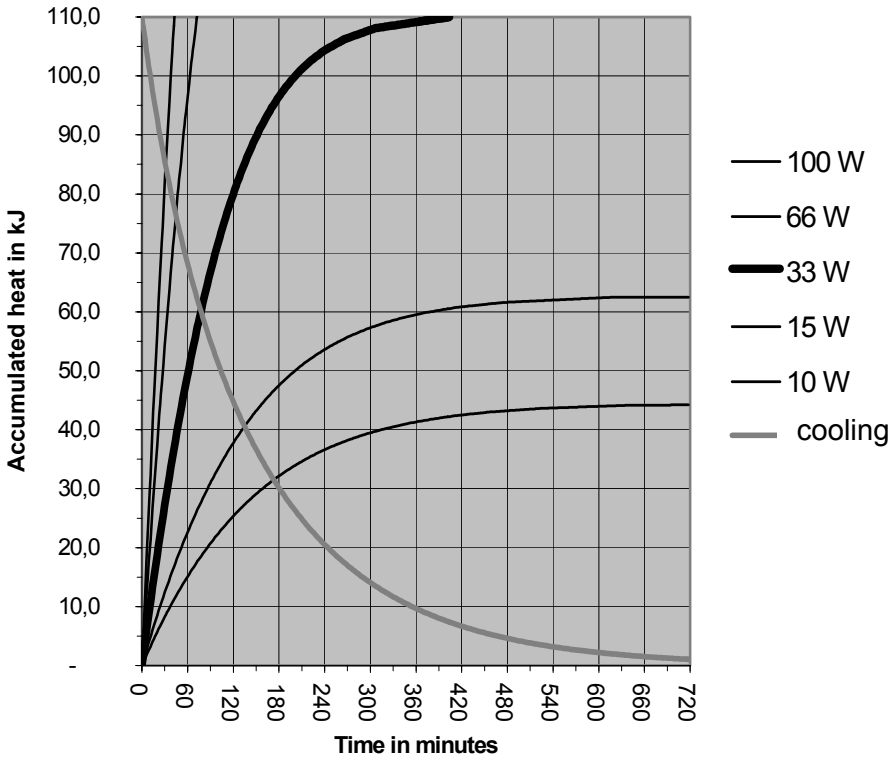
The radiogenic unit comprises:

- a transformer and a radiogenic tube, together with their associated electronic components immersed in oil.
- an aluminum filter which enhances the quality of the beam and reduces the dose received by the patient.
- a unit which limits the size of the beam at the image receiver unit.
- a thermal cutout which trips at an operating temperature of 65 C ± 5°C

Characteristics of the radiogenic unit

IEC Standard 601.2.28	Compliant
Manufacturer	Trophy
Degree of protection against electric shock	Class I
Degree of protection of the parts applied to the leakage current from the patient	Type B
Maximum accumulated heat	110 kJ
Maximum continuous heat dissipation	33 W
Nominal value of the focal spot (IEC 336/192)	0.5 mm
Tolerances on the position of the focal spot	± 2.5 mm
Weight	8.2 kg
Dimensions	235 x 245 x 120 mm

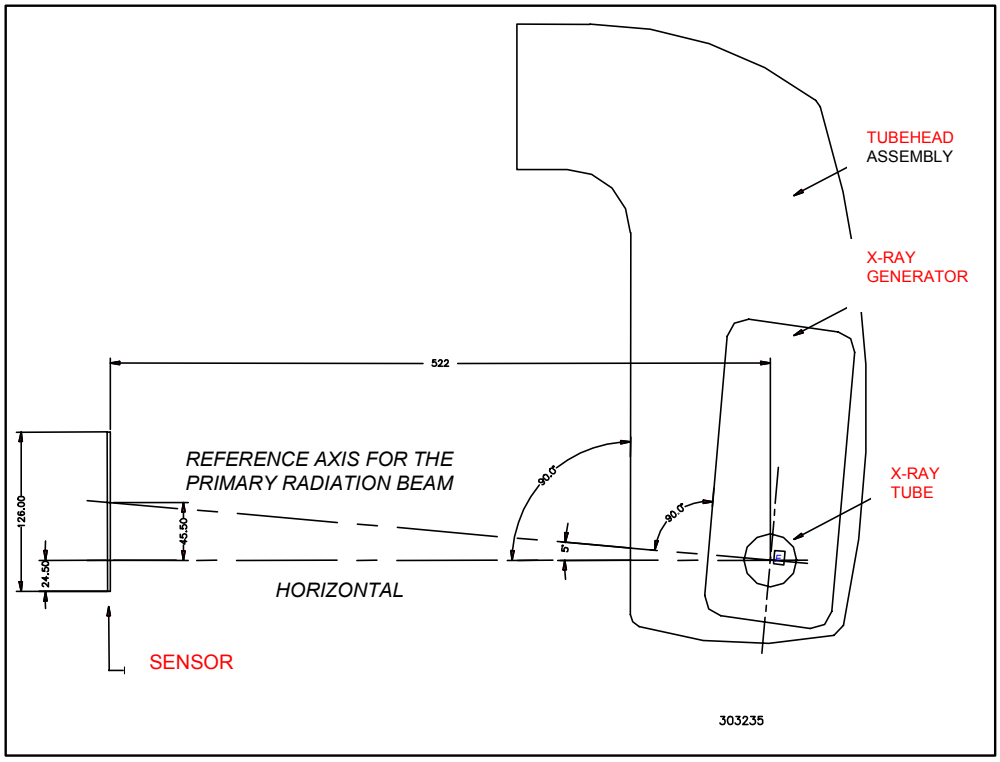
Heating and cooling curves



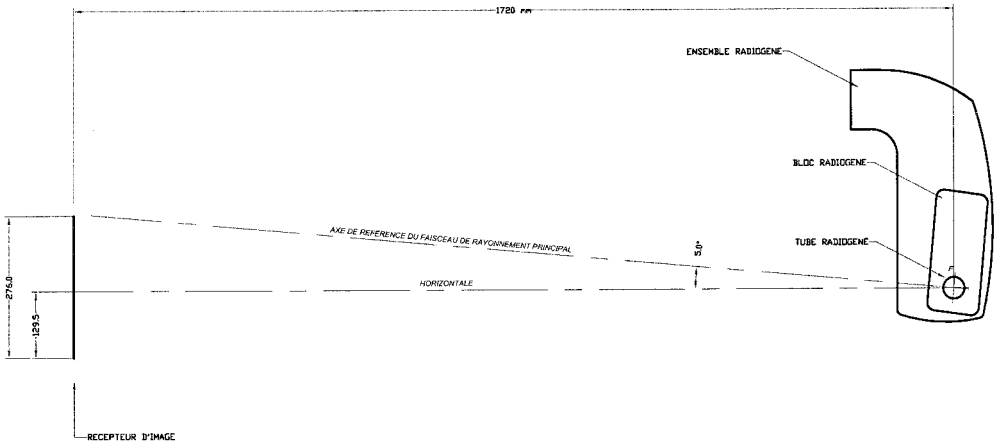
Beam limitation unit:

Manufacturer	Trophy
Type	Rigidly mounted unit with fixed window dimensions, not removable and integrated x-ray generator
Maximum symmetrical field of radiation 6.5 mm to 126 mm in panoramic mode at a distance of 522 mm from the focal point	Complies with IEC Standard 806
Maximum symmetrical field of radiation 6.5 mm to 126 mm in cephalometric mode at a distance of 1720 mm from the focal point	Complies with IEC Standard 806

Position of the reference axis for panoramic imaging procedure:



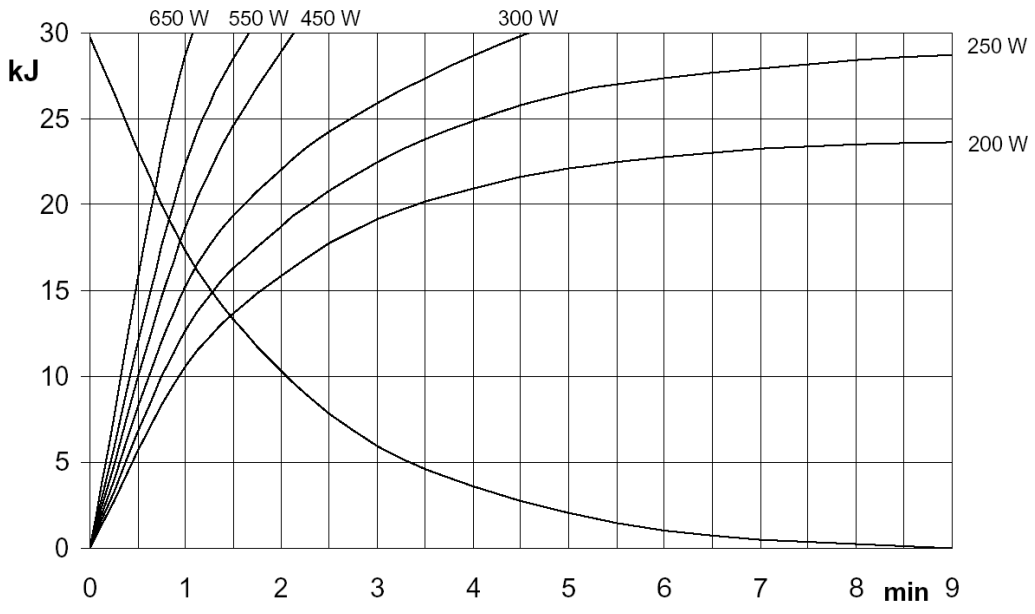
Position of the reference axis for cephalometric imaging procedure:

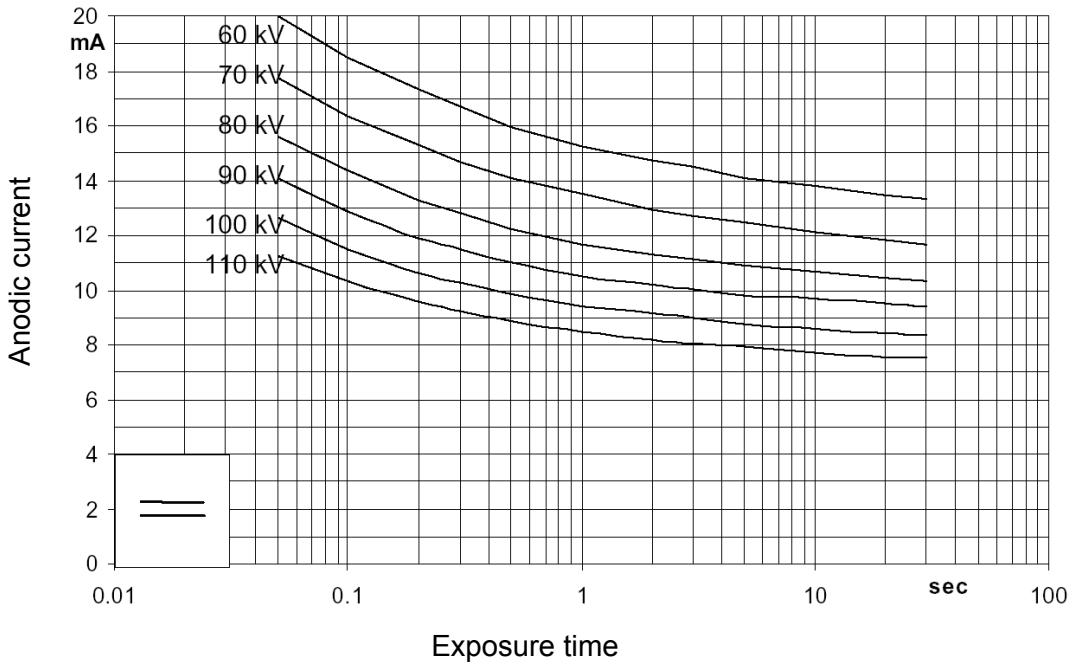


Characteristics of the x-ray tube:

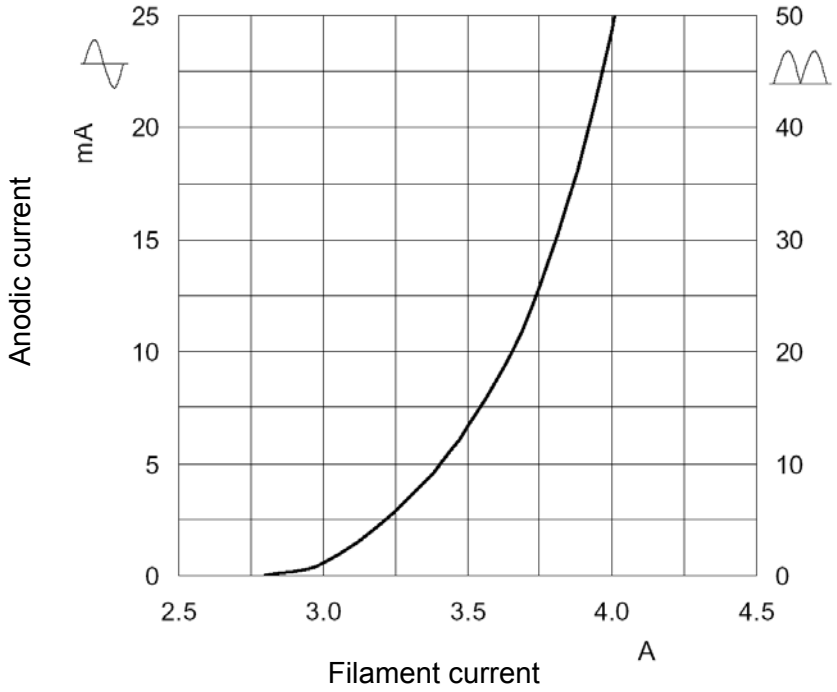
Manufacturer's name	CEI
Type	OPX 105
Nominal high tension	90 kV
Nominal anodic power	810 W
Maximum amount of heat accumulated in the anode	30 kJ
Nominal focusing value (IEC 336)	0.5 mm (0.020 ")
Anode electrode materials	Tungsten
Angle of the anode electrode	5°
Inherent filtration	0.5 mm (0.20 ") eq. Al

Heating and cooling curves:





Characteristics of emissions from the filament:



SECTION 6

PREVENTIVE MAINTENANCE

Annual maintenance

We recommend that a general inspection of the unit should be carried out every year by an approved Trophy technician. The inspection should cover the following points:

- Check the mechanical installation
- Clean the rotation track
- Clean the column tracks
- Check the alignment of the radiation, the collimators and the lasers
- Make a test exposure on the ball phantom and check the image
- Check the points of attachment to the floor and wall
- Check the degree of legibility of the labels
- Check the X-ray generator
- Check the focal trough
- Damage to cables, covers, oil leaks, etc.

If the results of any of these checks are unsatisfactory, refer to the Service Manual in order to rectify any problems.

If there is any doubt, do not operate the unit.

Kodak8000 Service Guide

trophy

C:1260mm

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The RVG technology is the subject of an international patent registered by Trophy Radiologie.

This document was originally written in French.

Revision date: 04/2003.

TROPHYPAN complies with Directive 93/42/CEE relating to medical equipment.

CE 0459

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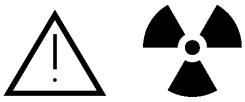
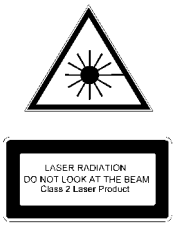
Note to service technicians



X-rays are not innocuous and can be dangerous if not used properly. Therefore, the instructions and warnings contained in this Manual must be carefully followed.
As a manufacturer of radiology units which conform to the most stringent radiological protection standards in force throughout the world, Trophy's know-how guarantees the maximum degree of protection against radiation hazards.
Nonetheless, you are handling a radiology unit which is specially designed to emit a dose of x-rays in order to carry out a medical diagnosis with the aid of a Trophy digital imaging system (exclusive patent).
The room in which your radiology unit is to be installed must comply with all official regulations applicable to protection against radiation.
The "WARNING" and "IONIZING RADIATION" symbols
mean: 'WARNING: IONIZING RADIATION'.
To operate and service the device, follow the instructions contained in this Manual.

Warnings and safety instructions



CAUTION Laser radiation. Do not look into the beam.
Class 2 laser product
This unit emits laser radiation.
For maximum safety, advise the patient not to look at the beam.
Before illuminating the beams, lower the Frankfurt plane beam to the lowest level.
While making adjustments, ensure that the beam is not directed into the patient's eyes.

DANGER This is an electrical unit. Do not expose it to water spray.
Such action may cause an electric shock or a malfunction of the unit.

WARNING The user is responsible for the operation and maintenance of this unit.
This unit must only be operated by legally qualified persons.
The cover of the unit must not be opened by the operator.
When necessary, inspection and maintenance operations should only be carried out by an approved Trophy technician.

WARNING This unit must be installed in x-ray room which complies with current installation standards.
From this location, visual or audio communication must be maintained with the patient, together with access to the control interface during exposure.

WARNING The TROPHYPAN unit has been designed to comply with European and international medical standards. In order to ensure conformity, the PCI interface board must be installed in a computer configuration which conforms to IEC 950 Standard.
The PC and the peripheral equipment connected to it must not be located in the immediate vicinity of the patient, thus at least 1.5 m from the panoramic unit.
For details of the data processing system (PC and screen), refer to the installation guides for your computer. Sufficient clear space must be left around the CPU in order to ensure that it is properly ventilated.
In order to obtain maximum image quality and visual comfort, the screen should be positioned so as to avoid direct light reflections (internal or external lighting).

WARNING Do not operate the unit if there is the threat of an earthquake.
Following an earthquake, ensure that the unit is operating satisfactorily before using it again.
Failure to observe this precaution may expose patients to hazards.

WARNING X-ray equipment can be hazardous to patients and the operator if the exposure safety factors and operating instructions are not observed.

WARNING Do not place objects within the field of operation of the unit.

WARNING We recommend that the patient is wearing a protectrice lead-lined apron, unless other Radiation Protection Protocols apply locally.
Ensure that any parts of the unit which may come into contact with the patient and the operator have been disinfected after each patient has been exposed to X-rays.
While adjusting the height of the unit, the operator must ensure that the patient is kept clear of the mechanism.
When the unit is not in use, ensure that the ON/OFF switch is set to OFF (O).
If the unit develops a fault, switch it off (O) and display a notice 'Unserviceable'.

WARNING To dispose of the unit and/or its components, contact our representatives or our Company.

WARNING Do not rotate the arm unit by hand as this may damage the unit.

WARNING The operator must ask the patient to refrain from moving during the entire period of exposure.

WARNING The operator must ask the patient to refrain from moving until the ARM UNIT has stopped moving and throughout the RESET movement.

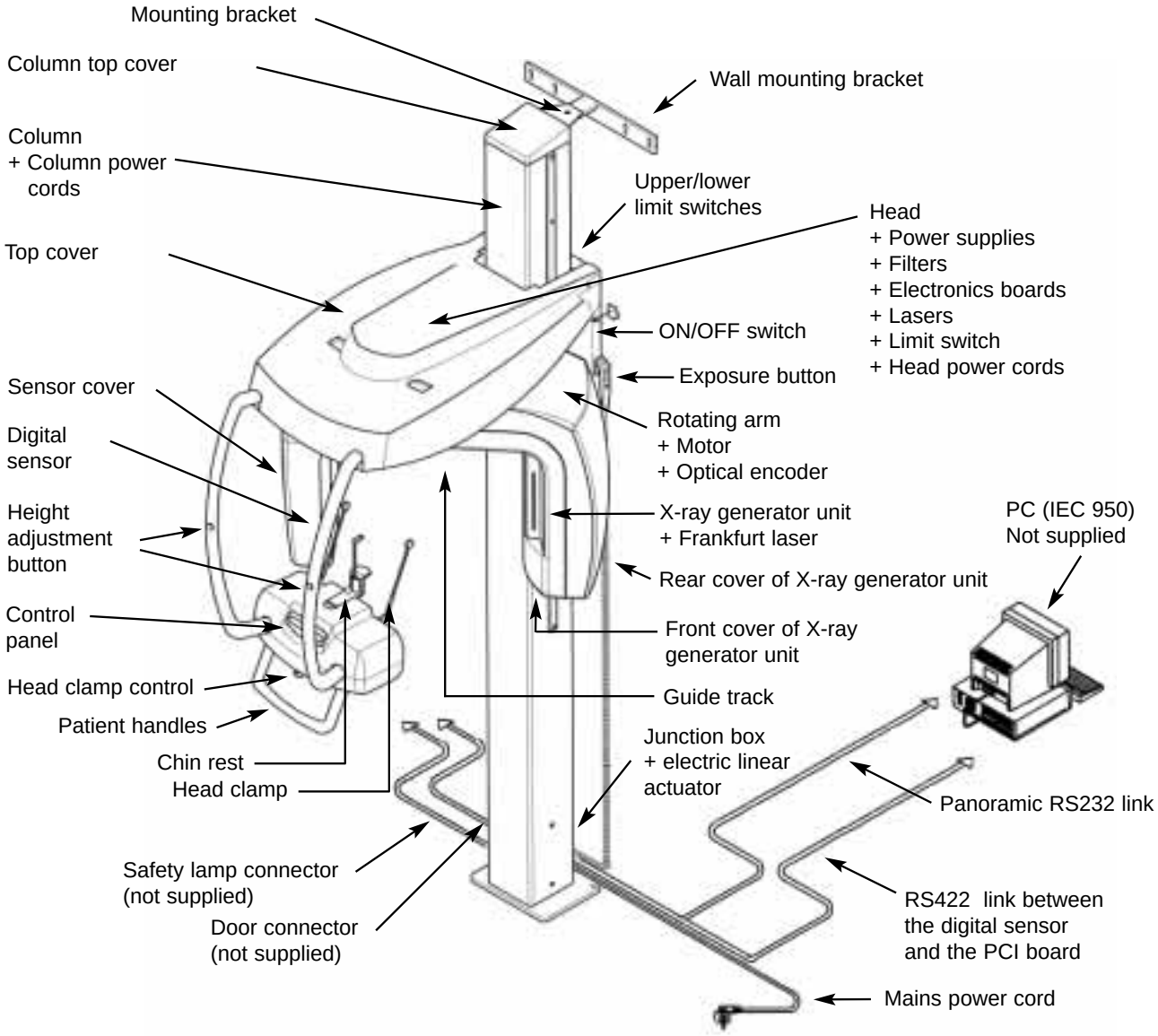
Warning regarding maintenance

WARNING The technician must comply with the standards currently in force while installing and using the radiology unit.
Whenever necessary, he must use a shield or wear a lead-lined apron.
The device must be switched off before the covers are removed.
Any work which has to be carried out on the device while it is switched on and while the covers are removed must be undertaken by an approved Trophy technician. Unqualified persons must not approach the device.

WARNING The adjustments or operations referred to above are delicate and may adversely affect the operation of the device.
They must be carried out by an approved Trophy technician.

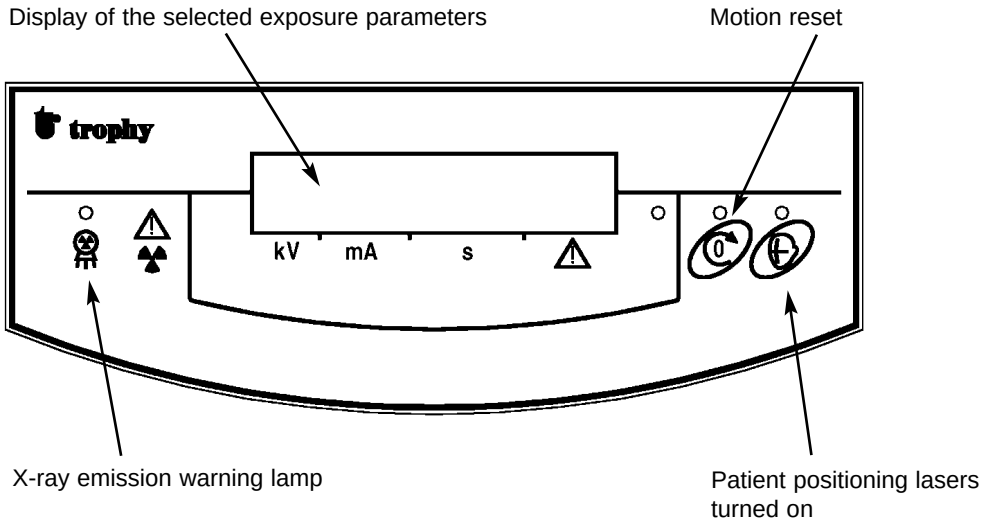
THE TROPHYPAN PANORAMIC UNIT

Functional description of the radiology unit



Operating controls on the TROPHYPAN

The control panel



The exposure button

Operating controls on the PC

Access to the TROPHYPAN graphic interface via Trophy Windows

NOTE
Also refer to the User Guide and the Trophy Windows online Help function.

The Trophy Windows software program forms the user interface with TROPHYPAN. Thus, the TROPHYPAN images are generated in the same way as STV or RVG images.
Trophy Windows was specially designed for use with Trophy sensors, which is why only this software program is able to exploit all the characteristics of the sensors.

Acquisition icon

In order to acquire a TROPHYPAN image (Panoramic, Sinus, TMJ), begin by selecting a patient medical record and then access the Trophy Windows Image Processing Module.
Activate the TROPHYPAN graphic interface. To do this, click on the acquisition icon (shown on the opposite page). The graphic interface is displayed.
At this stage it is possible to choose the type of image to be produced and to enter the exposure parameters. All the actions initiated on the graphic interface have a direct effect on the panoramic unit, to the extent that it is then only necessary to position the patient and press the exposure button as soon as all the options have been selected.
The image is displayed in real time in the Preview window. When acquisition is complete, the graphic interface disappears from the screen and is replaced by the Trophy Windows software program. The newly-acquired image is displayed in this program so that it can be read with the aid of the various digital imaging tools.

Controls accessible from the graphic user interface

① **Image Preview window:** receives the image in real time as the tubehead is rotated.

② **Summary of Parameters and Selected Program window:** confirms the current settings of the panoramic unit. This information is stored in the TROPHYPAN image and can be accessed by clicking on the image with the right mouse button. It should be noted that this information is also incorporated in every image which is printed out via Trophy Windows.

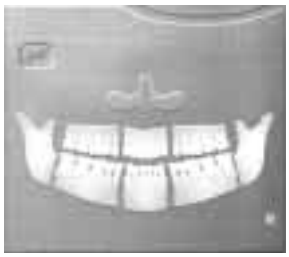
③ **System Status window:** displays the various messages originating from the panoramic unit.

④ **Main Window Selector.** By clicking on the button or on the text, the User can display the different functional blocks: Program, Patient or Parameters.

⑤ **Functional Blocks:** click on the button or on the names "Program", "Patient" or "Parameters" to enter, in stages, all the information required for acquiring the image.

A/ Functional blocks:

Program



Configured as shown opposite, the Program block is used to select the type of image to be produced. Click on the segments to be X-rayed (posterior, anterior, TMJ or sinus). Only the segments which are highlighted on the display will be exposed to the X-rays and will appear on the image.

NOTE Nonetheless, the areas are approximate and are dependent on correct positioning of the patient and his/her morphology .

ATTENTION
This diagram is a representation of the jaw, viewed from the patient. The right side diagram shows the right side of the patient. Depending on the configuration of Trophy Windows (refer to the 'Preferences' menu) the image may be viewed in mirror effect or as shown above.

To produce a full panoramic image, the complete dental arch must be selected.

The Maxillary Sinuses program cannot be activated at the same time as a segment of the dental arch or the TMJs.

The TMJ program is selected by clicking on one of the TMJs. It consists of views of the left and right TMJs with the mouth either open or closed (at the choice of the operator).

A 4-view TMJ image can be produced by clicking on the "x4" icon. This consists of views of the left and right TMJs with the mouth open and the mouth closed.

The panoramic unit then makes an initial pass. Acquisition of the image is then suspended to allow time to issue new instructions for positioning the patient.

The panoramic unit then makes a return pass before recording the last two views.

If the 'x4' icon is not activated, the image is acquired at the end of the first pass.

Patient

Configured as shown opposite, the Patient block is used to select the morphology of the patient to be X-rayed. First choose the basic morphology (Adult, Child), then the relative morphology (small, medium, large). Accurate selection of these parameters will influence the subsequent high quality of the image.

Example: If the Child/Medium morphology is selected while X-raying a rather stout adult, the image will be too light (under-exposed).

Parameters

Configured as shown opposite, the exposure parameters are preprogrammed on the basis of the information supplied in the preceding two functional blocks. However, the kilovolt (kV) and milliampere (mA) values can be modified.

Then simply click on the + et – buttons provided for this purpose. At this stage it is possible to store the parameters by clicking on the "Mem" key in order to retain the previously-selected modifications to the size and morphology. If the "Mem" key is not used, the default parameters will be applied again when the next image is acquired.

As a general rule, the kilovolt values should be increased if the bone structure of the patient is dense. On the other hand, the kilovolt values should be reduced for patients with low bone density (children, elderly persons). Thus, it may be necessary to adjust the milliampere values in order to obtain darker images (higher mA values) or lighter images (lower mA values).

NOTE The higher the kilovolt values, the lower the contrast on the image. However, the clinical information is incorporated in the image and it can then be revealed by deploying the Highlight tool (refer to the digital tools).

Table of radiographic parameters preprogrammed by the manufacturer:

Morphology	Small		Medium		Large	
Parameters	kV	mA	kV	mA	kV	mA
Child	71	6.3	71	10	71	12
Adult	73	10	73	12	75	12

These parameters can be modified at any time by the User by accessing the "Parameters" functional block in the graphic interface (refer to Section 2).

B/ Other functions:

WARNING
Do not direct the laser beams into the eyes of the patient.
Warn the patient of the potential risk.

Activate Laser Beams: this function is used to activate the light beams representing the Frankfurt plane, the canine plane and the sagittal-median plane, which are directed toward the patient's face. These laser beams assist with correctly positioning the patient in the panoramic unit.

NOTE The light beams are automatically turned off after a few seconds. They can be reactivated from the PC or directly from the panoramic unit.

Reset: this function resets the panoramic unit to its start position before producing a new image. If the camera is not in its start position, a message is displayed and the exposure button is disabled.

X-rays ON/OFF: this function is used to operate the panoramic unit without emitting X-rays ("X-Rays OFF" mode). If the X-ray emissions are turned off, the message 'Demo' is displayed in the status window in place of the "Ready" message

Sound ON/OFF: this function is used to mute the audible messages emitted by the graphic interface .

Exit from the TROPHYPAN graphic interface: this function is used to return to Trophy Windows. Warning: any modifications to the exposure parameters which have not been stored will be lost. If this button is pressed during the acquisition of an image, the emission of X-rays is immediately interrupted.

NOTE In order to instill an atmosphere of confidence in children, it is possible to position them and simulate the acquisition of an image before actually acquiring the image.

NOTE The emission of X-rays is only possible if the process interface system of the panoramic camera is active (PC turned on and control window in the foreground and visible). In this case, the message 'Ready' is displayed.

C/ Warning and indicator lamps:

Generator ready

When this symbol is green, the generator is emitting X-rays when the exposure button is activated. When it is black, the exposure button is disabled, preventing the emission of X-rays.

This symbol changes color when the "X-Rays ON/OFF" button is pressed (refer to the earlier section in this Guide).

If the generator is not ready, a message is displayed in the System Status window, indicating the action to be taken in order to be able to produce an image (this message is associated with a code, enabling more detailed information to be found in this Guide). Otherwise, the "Ready" message is displayed.

If this symbol is yellow, **X-rays are being emitted.**

Thus it is normal for this symbol to change to black during the production of images comprising non-adjacent blocks, since the X-rays are not emitted while the generator is being moved toward the next zone to be X-rayed. In every other case, the symbol is black.

NOTE Also refer to the safety regulations relating to protection against ionizing radiation, as applied in the User's country.

Cooling of the generator

The countdown indicates the time required for cooling the generator before a new image can be produced with the selected exposure parameters (mm:ss). Until this count reaches zero, the exposure button is disabled and the "Generator Ready" icon is black.

This cooling period varies automatically according to the frequency of image acquisitions and the selected parameters. This is a safety precaution designed to guarantee the operating life of the generator.

Cooling-off time between 2 image acquisitions:

Program	Exposure parameters	Cooling period
Full Panoramic	60 kV – 2 mA	10 seconds
Full Panoramic	70 kV – 10 mA	1 minute 10 seconds
Full Panoramic	90 kV – 10 mA	1 minute 40 seconds
Full Panoramic	80 kV – 15 mA	2 minutes 50 seconds

D/ Displaying parameters and reset

In the TROPHYPAN control window, click on ➜ ? ➜ 'About TROPHYPAN'.

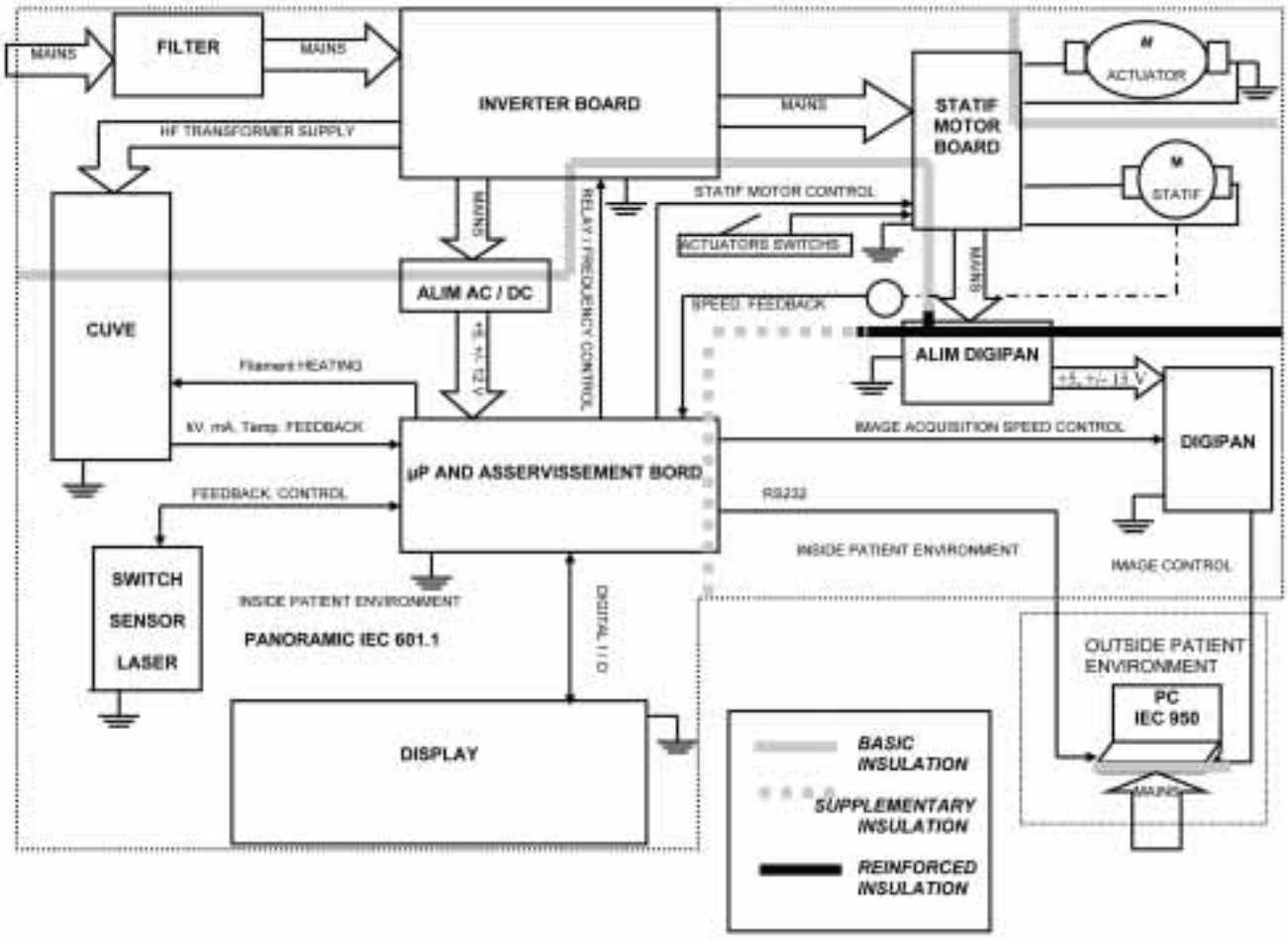
Among other information, this window displays the software version numbers, the manufacturing parameters, the calibration parameters and the user preferences (this menu is accessed in the same way in Trophy Windows).

In the TROPHYPAN control window, click on ➜ ? ➜ 'Reset settings'.

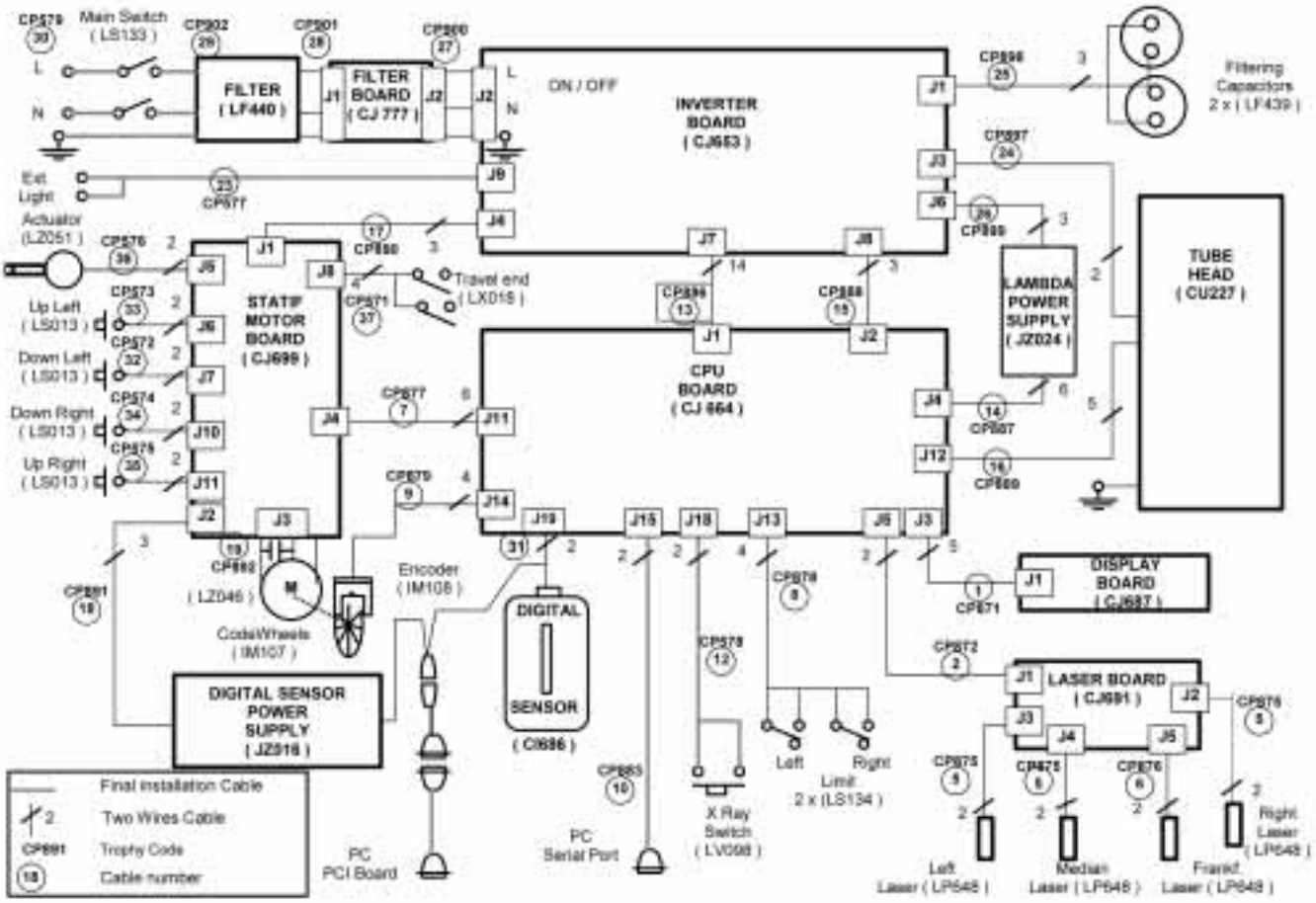
From this window, it is possible to restore the factory settings for the radiological parameters displayed in the Patient menu.

The menu can be selected if these settings have been modified and stored in the Parameters menu.

ELECTRICAL BLOCK DIAGRAM



WIRING AND INTERCONNECTIONS



TEST EQUIPMENT REQUIRED

- Digital multimeter
- kV peak meter
- Positioning scintillator
- Ball phantom
- Tools: metric Allen keys, metric set wrenches or socket wrenches, insulated screwdrivers, etc.

ERROR MESSAGES

Code	Message	Action
E 1	Handswitch was released before the end of exposure	The X-ray exposure button was released before the full image was acquired.

The microprocessor has detected that the exposure button was released before the emission of X-rays had ceased.

Possible cause:	The user has released the exposure button.
Remarks:	If the exposure button was released shortly before the end of the cycle, the image can be saved.
Identification of the fault:	
Actions:	Acknowledge the error and save the image if it is possible to view the required structures. Acknowledge the error and restart the image acquisition if it is not possible to view the required structures.

Possible cause:	The exposure, the safety contact (door contact or protective barrier against X-rays) or the wiring are defective.
Remarks:	
Identification of the fault:	The fault occurs when the exposure button is activated. The problem occurs frequently and at random intervals. Check the wiring, the exposure button and the contacts.
Actions:	Replace the defective component.

E 2	Mains power failure detected	Acknowledge the error. If the problem persists, check the electrical installation of the panoramic unit.

The microprocessor has detected a fault with the power supply voltage.

Possible cause:	Spikes or interferences in the power supply line.
Remarks:	In this case, there is a risk that the operation currently in progress may not be performed correctly (saving parameters for example). It is therefore recommended that this operation should be restarted.
Identification of the fault:	Check the electrical installation: The wiring to/from the device. The grounding of the installation. The section of the cables. The routing of the cables close to components which emit significant interference. The presence of other devices connected to the TROPHYPAN power supply line.
Actions:	If a fault is detected, the installation must be rendered compliant.

Possible cause:	The power supply to the Panoramic unit is 20 % higher or lower than the nominal value (refer to the identification plate).
Remarks:	**The device is not functioning correctly.**
Identification of the fault:	Check the electrical installation: Using a voltmeter, measure the voltage at the power supply socket. The wiring to/from the device. The section of the cables.
Actions:	If a fault is detected, the installation must be rendered compliant.

Possible cause:	One of the fuses F3, F4, F5 on the CJ653 board is defective.
Remarks:	These fuses protect the 12VRL.
Identification of the fault:	Check the fuses. Identify the component which may have caused the short-circuit: Power supply voltage excessively high (to be measured). Control of the relays on the CJ653 board. Control of the relays on the CJ699 board. Inputs/ outputs to/from the CJ664 board (limit switches, lasers, optical encoder).
Actions:	Replace the fuse and, if necessary, the defective component.

E 3	kV measurement problem	Acknowledge the error and restart acquisition of the image. If the problem persists, call a qualified technician.

The high voltage in the radiogenic unit exceeds the specified value.
The microprocessor has detected the fault and cuts the emission of X-rays so as to avoid damaging the radiogenic unit.

Possible cause:	A cable is defective.
Remarks:	
Identification of the fault:	Check the wiring inside the device: Connecting cables 14 and 16 (continuity, connections, cable condition).
Actions:	Replace the defective component.

Possible cause:	The CJ664 board or the radiogenic unit has been replaced without being calibrated.
Remarks:	The preheating value is incorrect.
Identification of the fault:	
Actions:	Calibrate the heating voltage. Refer to the 'Heater Voltage Calibration' menu on page 90.

Possible cause:	There is a fault on the CJ664 board or the radiogenic unit.
Remarks:	Measurements must be performed on the device.
Identification of the fault:	Refer to the paragraph 'Location and test signals' on page 53. 51 and the paragraph 'Checking the radiogenic unit' on page 58.
Actions:	Replace the board or the radiogenic unit. Calibrate the mA and heating values; refer to the 'mA Calibration' menu and 'Heater Voltage Calibration' menu on pages 89 and 90.

E 4	kV measurement Problem	Acknowledge the error and restart acquisition of the image. If the problem persists, call a qualified technician.

The high voltage in the radiogenic unit is lower than the specified value.
The microprocessor has detected the fault and cuts the emission of X-rays so as to avoid damaging the radiogenic unit.

Possible cause:	A cable is defective.
Remarks:	
Identification of the fault:	Check the wiring inside the device: Connecting cables 13, 15, 16 and 24 (continuity, connections, cable condition).
Actions:	Replace the defective component.

Possible cause:	The CJ664 board or the radiogenic unit has been replaced without being calibrated.
Remarks:	The preheating value is incorrect.
Identification of the fault:	
Actions:	Calibrate the heating voltage. Refer to the 'Heater Voltage Calibration' menu on page 90.

Possible cause:	The power supply to the Panoramic unit is 20 % lower than the nominal value (refer to the identification plate).
Remarks:	**The device is not functioning correctly.**
Identification of the fault:	Check the electrical installation: Using a voltmeter, measure the voltage at the power supply socket. The wiring to/from the device. The section of the cables.
Actions:	If a fault is detected, the installation must be rendered compliant.

Possible cause:	One of the fuses F1 or F2 on the CJ653 board is defective.
Remarks:	These fuses protect the power transistors.
Identification of the fault:	Check the fuses. If the fuses are burned, the CJ653 board may be defective.
Actions:	Replace the fuse and, if necessary, the CJ653 board; refer to the paragraph 'Replacing non-adjustable components' on page 59.

Possible cause:	The CJ664 board or the radiogenic unit is defective.
Remarks:	Measurements must be performed on the device.
Identification of the fault:	Refer to the paragraph 'Location and test signals' on page 53 and the paragraph 'Checking the radiogenic unit' on page 56.
Actions:	Replace the board or the radiogenic unit. Calibrate the mA and heating values; refer to the 'mA Calibration' menu and the 'Heater Voltage Calibration' menu on pages 89 and 90.

E 6	Problem inside generator	Acknowledge the error and restart acquisition of the image. If the problem persists, call a qualified technician.

An electric arc has been generated in the radiogenic unit.
The microprocessor has detected the fault and cuts the emission of X-rays so as to avoid damaging the radiogenic unit.

Possible cause:	The radiogenic unit is defective.
Remarks:	
Identification of the fault:	Perform one or more exposures at 90 kV – 8mA. When an electric arc is generated, in many cases a click can be heard in the radiogenic unit. Also refer to the paragraph 'Checking the radiogenic unit' on page 56.
Actions:	Replace the radiogenic unit. Calibrate the mA and heating values; refer to the 'mA Calibration' menu and the 'Heater Voltage Calibration' menu on pages 89 and 90.

Possible cause:	The CJ664 board or the radiogenic unit has been replaced without being calibrated.
Remarks:	The preheating value is incorrect.
Identification of the fault:	
Actions:	Calibrate the heating voltage. Refer to the 'Heater Voltage Calibration' menu on page 90.

Possible cause:	The power supply to the Panoramic unit is 20 % lower lower than the nominal value (refer to the identification plate).
Remarks:	**The device is not functioning correctly.**
Identification of the fault:	Check the electrical installation: Using a voltmeter, measure the voltage at the power supply socket. The wiring to/from the device. The section of the cables.
Actions:	If a fault is detected, the installation must be rendered compliant.

E 7	mA measurement problem	Acknowledge the error and restart acquisition of the image. If the problem persists, call a qualified technician.
E 8	mA measurement problem	Acknowledge the error and restart acquisition of the image. If the problem persists, call a qualified technician.

The mA values in the radiogenic unit exceed the specified values.
The microprocessor has detected the fault and cuts the emission of X-rays so as to avoid damaging the radiogenic unit.

Possible cause:	A cable is defective.
Remarks:	
Identification of the fault:	Check the wiring inside the device: Connecting cables 14 and 16 (continuity, connections, cable condition).
Actions:	Replace the defective component.

Possible cause:	The CJ664 board or the radiogenic unit has been replaced without being calibrated.
Remarks:	The preheating value is incorrect.
Identification of the fault:	
Actions:	Calibrate the mA values; refer to the paragraph 'mA Calibration' menu on page 90.

Possible cause:	The value of the supply voltage to the heating circuit is incorrect.
Remarks:	In this case, the mA values can only be too low.
Identification of the fault:	Measure the supply voltage to the heating circuit (PT14 on the CJ664 board). WARNING: THIS VALUE MUST BE SET TO 6.50 VDC.
Actions:	Refer to the paragraph 'Location and test signals' on page 53.

Possible cause:	The CJ664 board or the radiogenic unit is defective.
Remarks:	Measurements must be performed on the device.
Identification of the fault:	Refer to the paragraph 'Location and test signals' on page 53 and the paragraph 'Checking the radiogenic unit' on page 56.
Actions:	Replace the board or the radiogenic unit. Calibrate the mA and heating values; refer to the 'mA Calibration' menu ' and the 'Heater Voltage Calibration' menu on pages 89 and 90.

E 9	**Filament heating problem**	**Acknowledge the error and restart acquisition of the image. If the problem persists, call a qualified technician.**

E 10	**Filament heating problem**	**Acknowledge the error and restart acquisition of the image. If the problem persists, call a qualified technician.**

The current passing through the filament of the X-ray tube exceeds the specified values. The microprocessor has detected the fault and cuts the emission of X-rays so as to avoid damaging the radiogenic unit.

Possible cause:	A cable is defective.
Remarks:	
Identification of the fault:	Check the wiring inside the device: Connecting cables 14 and 16 (continuity, connections, cable condition).
Actions:	Replace the defective component.

Possible cause:	The value of the preheating voltage is incorrect.
Remarks:	The CJ664 board or the radiogenic unit has been replaced without being calibrated.
Identification of the fault:	
Actions:	Calibrate the heater; refer to 'Heater Voltage Calibration' menu' on page 90.

Possible cause:	The value of the supply voltage to the heating circuit is incorrect or the power supply to the Panoramic unit has failed.
Remarks:	In this case, the mA values can only be too low.
Identification of the fault:	Measure the power supply voltage to the heating circuit circuit (PT14 on the CJ664 board). WARNING: THIS VALUE MUST BE SET TO 6.50 V DC.
Actions:	Adjust the voltage; refer to the paragraph 'Location and test signals' on page 51 or change the power supply.

Possible cause:	The filament of the X-ray tube is open.
Remarks:	In this case, the mA values can only be too low, or absent.
Identification of the fault:	Measure the value of the filament resistor. Refer to the paragraph 'Checking the radiogenic unit' on page 56.
Actions:	Replace the radiogenic unit. Calibrate the mA and heating values; refer to the 'mA Calibration' menu and the 'Heater Voltage Calibration' menu on pages 89 and 90.

Possible cause:	The CJ664 board or the radiogenic unit is defective.
Remarks:	Measurements must be performed on the device.
Identification of the fault:	Refer to the paragraph 'Location and test signals' on page 53 and the paragraph 'Checking the radiogenic unit' on page 56.
Actions:	Replace the board or the radiogenic unit. Calibrate the mA and heating values; refer to the 'mA Calibration' menu and the 'Heater Voltage Calibration' menu on pages 89 and 90. The CJ664 board or the radiogenic unit is defective.

E 11	Safety device activated on high voltage capacitors	Acknowledge the error and restart acquisition of the image. If the problem persists, call a qualified technician.

The voltage at the terminals of the 2200 µF – 250 V capacitors is incorrect.

Possible cause:	The power supply to the Panoramic unit is 20 % higher or lower than the nominal voltage (refer to the identification plate).
Remarks:	**The device is not functioning correctly.**
Identification of the fault:	Check the electrical installation: Using a voltmeter, measure the voltage at the power supply socket. The wiring to/from the device. The section of the cables.
Actions:	If a fault is detected, the installation must be rendered compliant.

Possible cause:	A cable is defective.
Remarks:	
Identification of the fault:	Check the wiring inside the device: Connecting cable 25 (continuity, connections, cable condition).
Actions:	Replace the defective component..

Possible cause:	One of the fuses F1 or F2 on the CJ653 board is defective.
Remarks:	These fuses protect the power transistors.
Identification of the fault:	Check the fuses. If the fuses are burned, the CJ653 board may be defective.
Actions:	Replace the fuse or, if necessary, the CJ653 board.

Possible cause:	One of the 2200 µF – 250 V capacities is unserviceable.
Remarks:	
Identification of the fault:	Check the capacitors. Immediately after the X-rays are emitted, the voltage should be between: 127 V and 183 V on each capacitor.
Actions:	Replace the capacitors (both capacitors must be changed at the same time).

E 12	Problem with switch	Acknowledge the error and restart acquisition of the image. If the problem persists, call a qualified technician.

The limit switch was not detected during calibration or during a reset of the movement.
In this case, the arm may as far as the mechanical end stop travel and the driving wheel may skid (there is no risk of damage to the device).

WARNING To move the arm backward and forward, deactivate the emission of X-rays using thecommand

Possible cause:	One of the limit switches is defective.
Remarks:	
Identification of the fault:	Check that the contact is closed when the limit switch is activated. LD06 or LD07 illuminated on CJ664.
Actions:	Replace the defective component.

Possible cause:	A cable is defective.
Remarks:	
Identification of the fault:	Check connecting cable 8 inside the device (continuity, connections, cable condition).
Actions:	Replace the defective component.

Possible cause:	The motor is defective or the driving wheel is skidding.
Remarks:	
Identification of the fault:	The motor does not turn or the motor is turning and the driving wheel is skidding.
Actions	Replace the motor, clean the track with a soft damp cloth or tighten the driving wheel on the motor shaft.

Possible cause:	The CJ699 board is defective.
Remarks:	A problem with the CJ699 board may be due to a problem with the motor.
Identification of the fault:	On the CJ699 board, check: Fuses F3 and F4.. Relay K1 should turn on when the motor is switched on. The status of relay K2 should change when the direction of rotation of the motor is reversed.
Actions:	Replace the defective component.

E 13	Travel measurement problem	Acknowledge the error and restart acquisition of the image. If the problem persists, call a qualified technician.
E 14	Travel measurement reproducibility problem	Acknowledge the error and restart acquisition of the image. If the problem persists, call a qualified technician.

During calibration of the movement, the microprocessor has detected an inconsistency.

Possible cause:	The position of one of the limit switches is incorrect.
Remarks:	
Identification of the fault:	Check the tightness and position of the limit switches; refer to to the paragraph 'Replacing the limit switches' on page 67.
Actions:	Locate and correctly secure the limit switches.

Possible cause:	The optical encoder or the code wheel is defective or is incorrectly positioned.
Remarks:	
Identification of the fault:	Check the tightness and condition of the code wheel and of the optical encoder.
Actions:	Replace the defective component.

Possible cause:	The driving wheel is skidding.
Remarks:	
Identification of the fault:	The motor is turning and the driving wheel is skidding.
Actions:	Clean the track with a soft damp cloth or tighten the driving wheel on the motor shaft.

Possible cause:	A cable is defective.
Remarks:	
Identification of the fault:	Check connecting cables 8 and 9 inside the device (continuity, connections, cable condition)
Actions:	Replace the defective component.

E 15	Movement too long	Acknowledge the error and restart acquisition of the image. If the problem persists, call a qualified technician.

During calibration of the movement, the microprocessor has detected an inconsistency.

Possible cause:	One of the limit switches is defective.
Remarks:	
Identification of the fault:	Check that the contact is closed when the limit switch is activated. LD06 or LD07 illuminated on CJ664.
Actions:	Replace the defective component.

Possible cause:	A cable is defective.
Remarks:	
Identification of the fault:	Check connecting cable 8 inside the device (continuity, connections, cable condition).
Actions:	Replace the defective component.

Possible cause:	The driving wheel is skidding.
Remarks:	
Identification of the fault:	The motor is turning and the driving wheel is skidding.
Actions:	Clean the track with a soft damp cloth or tighten the driving wheel on the motor shaft.

E 16	Movement too short	Acknowledge the error and restart acquisition of the image. If the problem persists, call a qualified technician.

During calibration of the movement, the microprocessor has detected an inconsistency.

Possible cause:	The optical encoder or the code wheel is defective or incorrectly positioned.
Remarks:	
Identification of the fault:	Check the tightness and condition of the code wheel and of the optical encoder.
Actions:	Replace the defective component.

Possible cause:	A cable is defective.
Remarks:	
Identification of the fault:	Check connecting cable 9 inside the device (continuity, connections, cable condition).
Actions:	Replace the defective component.

Possible cause:	The motor is defective.
Remarks:	
Identification of the fault:	The motor does not turn.
Actions:	Replace the motor.

Possible cause:	The CJ699 board is defective.
Remarks:	A problem with the CJ699 board may be due to a problem with the motor.
Identification of the fault:	On the CJ699 board, check: Fuses F3 and F4. Relay K1 should turn on when the motor is switched on. The status of relay K2 should change when the direction of rotation of the motor is reversed.
Actions:	Replace the defective component.

E 17	Movement measurement reproducibility problem	Acknowledge the error and restart acquisition of the image. If the problem persists, call a qualified technician.

During calibration of the movement, the microprocessor has detected an inconsistency.

Possible cause:	The position of one of the limit switches is incorrect.
Remarks:	
Identification of the fault:	Check the security and position of the limit switches; refer to the paragraph 'Replacing the limit switches' on page 67.
Actions:	Locate and correctly secure the limit switches.

Possible cause:	The optical encoder or the code wheel is defective or incorrectly positioned.
Remarks:	
Identification of the fault:	Check the tightness and condition of the code wheel and of the optical encoder.
Actions:	Replace the defective component.

Possible cause:	The driving wheel is skidding
Remarks:	
Identification of the fault:	The motor is turning and the driving wheel is skidding.
Actions:	Clean the track with a soft damp cloth or tighten the driving wheel on the motor shaft.

Possible cause:	A cable is defective.
Remarks:	
Identification of the fault:	Check connecting cables 8 and 9 inside the device (continuity, connections, cable condition)
Actions:	Replace the defective component.

E 22	**Capture stopped. Interface has been masked**	**The control window was closed during the emission of X-rays. The control window must always be active and it should be placed in the foreground before an image can be acquired.**

In accordance with IEC Standard 60601.2.7 (1994), the display and control window of the unit must always be visible and accessible during the emission of X-rays.

Thus, if any window is masking a TROPHYPAN window, it will be impossible to expose an image.

If acquisition of the image is in progress and if, for example, the control window is closed, the emission of X-rays will be interrupted prematurely (in the case of the standby window, the emission of X-rays will terminate in any event in order to avoid needless loss of the image).

This may also occur if an object which is highly opaque to X-rays is in the field of view. In this case, the digital sensor does not receive a sufficient dose and it interrupts the exposure prematurely.

Possible cause:	The TROPHYPAN window is no longer active or is being masked by another window.
Remarks:	
Identification of the fault:	If the user presses the exposure button, the device does not begin begin to expose the image and displays an information message.
Actions:	Select the TROPHYPAN window.

E 23	No movement detected	Acknowledge the error. If the problem persists, call a qualified technician.

During the emission of X-rays, the microprocessor has detected an absence of movement.

WARNING To move the arm backward and forward, deactivate the emission of X-rays using thecommand

Possible cause:	The motor is defective.
Remarks:	
Identification of the fault:	The motor does not turn.
Actions:	Replace the motor.

Possible cause:	The CJ699 board is defective.
Remarks:	A problem with the CJ699 board may be due to a problem with the motor.
Identification of the fault:	On the CJ699 board, check: Fuses F3 and F4. Relay K1 should turn on when the motor is switched on. The status of relay K2 should change when the direction of rotation of the motor is reversed.
Actions:	Replace the defective component.

Possible cause:	The optical encoder or the code selector is defective or incorrectly positioned.
Remarks:	
Identification of the fault:	Check the security and condition of the code selector and of the optical encoder.
Actions:	Replace the defective component.

E 24	Heating voltage self-calibration timeout	Acknowledge the error. If the problem persists, call a qualified technician.
E 25	Heating voltage lower limit reached	Acknowledge the error. If the problem persists, call a qualified technician.
E 26	Heating voltage higher limit reached	Acknowledge the error. If the problem persists, call a qualified technician.

During calibration, the microprocessor has failed to attain the specified mA values.

Possible cause:	A cable is defective.
Remarks:	
Identification of the fault:	Check the wiring inside the device: Connecting cables 14 and 16 (continuity, connections, cable condition).
Actions:	Replace the defective component.

Possible cause:	The value of the supply voltage to the heating circuit is incorrect or the power supply to the Panoramic unit is defective.
Remarks:	In this case, the mA values can only be too low.
Identification of the fault:	Measure the voltage at the out put terminals of the power supply on the +5 V WARNING: THIS VALUE MUST BE SET TO 6.50 V DC
Actions:	Adjust the voltage; refer to the paragraph 'Location and test signals' on page 53 or replace the power supply.

Possible cause:	The filament of the X-ray tube is open.
Remarks:	In this case, the mA values can only be too low, or absent.
Identification of the fault:	Measure the value of the filament resistor. Refer to the paragraph 'Checking the radiogenic unit' on page 56.
Actions	Replace the radiogenic unit. Calibrate the mA and heating values; refer to the 'mA Calibration' menu 'mA Calibration' menu and 'Heater Voltage Calibration' menu on pages 89 et 90.

Possible cause:	The CJ664 board or the radiogenic unit is defective.
Remarks:	Measurements must be performed on the device.
Identification of the fault:	Refer to the paragraph 'Location and test signals' on page 53 and the paragraph 'Checking the radiogenic unit' on page 56.
Actions:	Replace the board or the radiogenic unit. Calibrate the mA and heating values; refer to the 'mA Calibration' menu 'mA Calibration' menu and 'Heater Voltage Calibration' menu on pages 89 and 90.

E 50	Program evolution problem	Acknowledge the error. If the problem persists, call a qualified technician.
E 51	Serial EPROM read error	Acknowledge the error. If the problem persists, call a qualified technician.

The CJ664 board has detected a malfunction in the sequence of the program.

Possible cause:	Spikes or interferences in the power supply line.
Remarks:	
Identification of the fault:	Check the electrical installation: The wiring to/from the device. The grounding of the installation. The section of the cables. The routing of the cables close to components which emit significant interference. The presence of other devices connected to the TROPHYPAN power supply line.
Actions:	If a fault is detected, the installation must be rendered compliant.

Possible cause:	The CJ664 board is defective.
Remarks:	
Identification of the fault:	
Actions:	Replace the board. Calibrate the mA and heating values; refer to the 'mA Calibration' menu 'mA Calibration' menu and 'Heater Voltage Calibration' menu on pages 89 and 90.

E 52	Communication problem with consol	Acknowledge the error. If the problem persists, call a qualified technician.

The microprocessor board has detected a problem with communication with the TROPHYPAN control panel.

Possible cause:	A cable is defective.
Remarks:	
Identification of the fault:	Check connecting cable 1 inside the device (continuity, connections, cable condition).

Possible cause:	The CJ687 board is defective.
Remarks:	
Identification of the fault:	The display on the control panel is turned off.
Actions:	Replace the board, check the +5V from the CJ664 board.

Possible cause:	La carte CJ664 est en panne.
Remarks:	
Identification of the fault:	
Actions:	Replace the board. Calibrate the mA and heating values; refer to the 'mA Calibration' menu 'mA Calibration' menu and 'Heater Voltage Calibration' menu on pages 89 and 90.

E 53	Backup battery out of service	The operating life of the clock battery in the panoramic unit is approximately 10 years. Call a qualified technician to replace the battery.

WARNING The batteries must not be incinerated or discarded into the environment. They must be taken to the collection points for used batteries.

The battery used to retain certain items of information in the memory is exhausted.

Possible cause:	The battery is exhausted.
Remarks:	WARNING: TWO TYPES OF BATTERY MAY BE FITTED.
Identification of the fault:	
Actions:	Replace the battery; refer to the paragraph 'Replacing the battery on the CJ664 board' on page 69.

Possible cause:	The CJ664 board is defective.
Remarks:	
Identification of the fault:	
Actions:	Replace the board. Calibrate the mA and heating values; refer to the 'mA Calibration' menu 'mA Calibration' menu and 'Heater Voltage Calibration' menu on pages 89 and 90.

E 54	**Inconsistency in calibration parameters**	**Choose the 'Restart' option in the control window. If the problem persists, choose 'Restore' to retrieve the result of the previous save operation. If this fails to cure the problem, call a qualified technician.**
E 55	**Error in stored parameters**	**Default set values have been loaded. Click on 'OK' and check the set values before exposing an image. If the problem persists, reset all the set values from the 'Information' menu on the process interface. If this fails to cure the problem, call a qualified technician.**
E 56	**Error in manufacturing parameters**	**Choose the 'Restart' option in the control window. If the problem persists, choose 'Restore' to retrieve the result of the previous save operation. If this fails to cure the problem, call a qualified technician.**
E 57	**Error in user preferences**	**Choose the 'Restart' option in the control window. If the problem persists, choose 'Restore' to retrieve the result of the previous save operation. If this fails to cure the problem, call a qualified technician.**

The CJ664 board has detected a malfunction in the sequence of the program.

Possible cause:	Spikes or interferences in the power supply line.
Remarks:	
Identification of the fault:	Check the electrical installation: The wiring to/from the device. The grounding of the installation. The section of the cables. The routing of the cables close to components which emit significant interference. The presence of other devices connected to the TROPHYPAN power supply line.
Actions:	If a fault is detected, the installation must be rendered compliant.

Possible cause:	The CJ664 board is defective.
Remarks:	
Identification of the fault:	
Actions:	Replace the board. Calibrate the mA and heating values; refer to the 'mA Calibration' menu and 'Heater Voltage Calibration' menu on pages 89 and 90.

E 58	Exposure context error	Acknowledge the error and check the selections before reacquiring an image. If the problem persists, call a qualified technician.

WARNING The batteries must not be incinerated or discarded into the environment. They must be taken to the collection points for used batteries.

The CJ664 board has detected a malfunction in the sequence of the program.

Possible cause:	The battery is exhausted.
Remarks:	WARNING: TWO TYPES OF BATTERY MAY BE FITTED.
Identification of the fault:	
Actions:	Replace the battery; refer to the paragraph 'Replacing the battery on the CJ664 board' on page 69.

Possible cause:	The CJ664 is defective.
Remarks:	
Identification of the fault:	
Actions:	Replace the board. Calibrate the mA and heating values; refer to the 'mA Calibration' menu and 'Heater Voltage Calibration' menu on pages 89 and 90.

E 59	Program evolution error	Acknowledge the error. If the problem persists, call a qualified technician.

The CJ664 board has detected a malfunction in the sequence of the program.

Possible cause:	Spikes or interferences in the power supply line.
Remarks:	
Identification of the fault:	Check the electrical installation: The wiring to/from the device. The grounding of the installation. The section of the cables. The routing of the cables close to components which emit significant interference. The presence of other devices connected to the TROPHYPAN power supply line.
Actions:	If a fault is detected, the installation must be rendered compliant.

Possible cause:	The CJ664 board is defective.
Remarks:	
Identification of the fault:	
Actions:	Replace the board. Calibrate the mA and heating values; refer to the 'mA Calibration' menu and 'Heater Voltage Calibration' menu on pages 89 and 90.

E 60	Hardware error detected	Acknowledge the error. If the problem persists, call a qualified technician.

The CJ664 board has detected a malfunction in the circuit which provides communication with the TROPHYPAN control panel.

Possible cause:	This may be a transient problem.
Remarks:	
Identification of the fault:	
Actions:	Turn off the device and turn it on again.

Possible cause:	A cable is defective.
Remarks:	
Identification of the fault:	Check connecting cable 1 inside the device (continuity, connections, cable condition).

Possible cause:	The CJ664 board is defective.
Remarks:	
Identification of the fault:	
Actions:	Replace the board. Calibrate the mA and heating values; refer to the 'mA Calibration' menu and 'Heater Voltage Calibration' menu on pages 89 and 90.

Possible cause:	The CJ687 board is defective.
Remarks:	
Identification of the fault:	The display on the control panel is turned off.
Actions:	Replace the board.

OTHER FAULTS

No locking or permanent locking of the column

Possible cause:	One of the fuses F1 or F2 on the CJ699 board is burned.
Remarks:	A problem with the CJ699 board may be due to a problem with the electric linear actuator.
Identification of the fault:	Check the fuses.
Actions:	Replace the defective fuse.

Possible cause:	The brake release buttons are defective.
Remarks:	
Identification of the fault:	Check the condition of the buttons and their wiring (connecting cables 21 and 22). When the button is pressed, the contact is closed.
Actions:	Replace the defective button.

Possible cause:	The electric linear actuator is defective.
Remarks:	
Identification of the fault:	Check the condition of the electric linear actuator, its wiring (connecting cable 20) and the continuity of the circuits.
Actions:	Replace the electric linear actuator.

Possible cause:	The CJ699 board is defective
Remarks:	
Identification of the fault:	
Actions:	Replace the CJ699 board.

During the emission of X-rays, the image is not displayed displayed in the Preview window on the PC.

Possible cause:	A cable is defective.
Remarks:	
Identification of the fault:	Check the cable connected to J19 on the CJ664 board.
Actions:	Rectify the fault.

Possible cause:	The CJ648 PCI board or the CJ664 board of the Panoramic unit or the power supply to the digital sensor or the digital sensor itself are defective.
Remarks:	
Identification of the fault:	
Actions:	Replace the defective component. If it is necessary to replace the CJ664 board, calibrate the mA and heating values; refer to the 'mA Calibration' menu and 'Heater Voltage Calibration' menu on pages 89 and 90.

The Panoramic icon is not displayed in TrophyWindows.

Possible cause:	There is no PCI board in the PC or it has been incorrectly installed.
Remarks:	
Identification of the fault:	Open the P and check the presence and correct connection of the PCI board. Check the condition of the driver.
Actions:	Rectify the fault or re-install the driver.

The Panoramic icon is displayed in TrophyWindows but when it is selected the following message appears: 'The RS422 link with the Panoramic unit is not connected or the Panoramic unit is not switched on.'

Possible cause:	Unsatisfactory wiring.
Remarks:	
Identification of the fault:	Check the interconnections between the PC and TROPHYPAN. Check the wiring to/from the digital sensor inside the device.
Actions:	Rectify the fault.

Possible cause:	TROPHYPAN is turned off.
Remarks:	
Identification of the fault:	
Actions:	Launch TROPHYPAN.

Possible cause:	The CJ648 PCI board or the power supply to the digital sensor or the digital sensor itself are defective.
Remarks:	
Identification of the fault:	
Actions:	Replace the defective component.

The following message is displayed in the TROPHYPAN window: 'Process interface inactive'. The RS232 link is not connected to the Panoramic unit or the Panoramic unit is turned off.

Possible cause:	Unsatisfactory wiring.
Remarks:	
Identification of the fault:	Check the interconnections between the PC and TROPHYPAN. Check connecting cable 10 inside the device.
Actions	Rectify the fault.

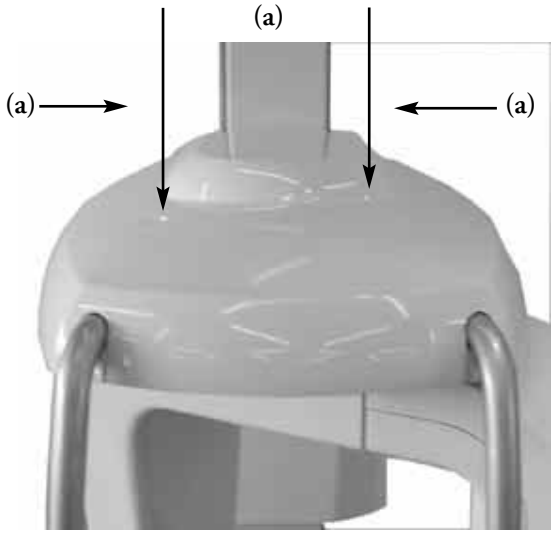
Possible cause:	TROPHYPAN is turned off, or the connector is ployed in to another COM port of the computer.
Remarks:	
Identification of the fault:	
Actions	Launch TROPHYPAN.

Possible cause:	The CJ664 board is defective.
Remarks:	
Identification of the fault:	
Actions:	Replace the defective component Calibrate the mA and heating values; refer to the 'mA Calibration' menu and 'Heater Voltage Calibration' menu on pages 89 and 90.

FITTING/REMOVING THE COVERS

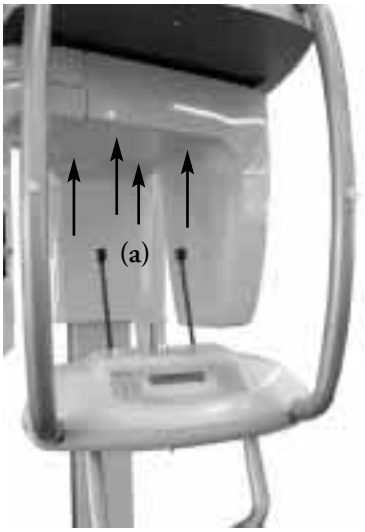
Top cover

1. Switch off the device and remove the 4 screws (a)..
2. Lift the cover.



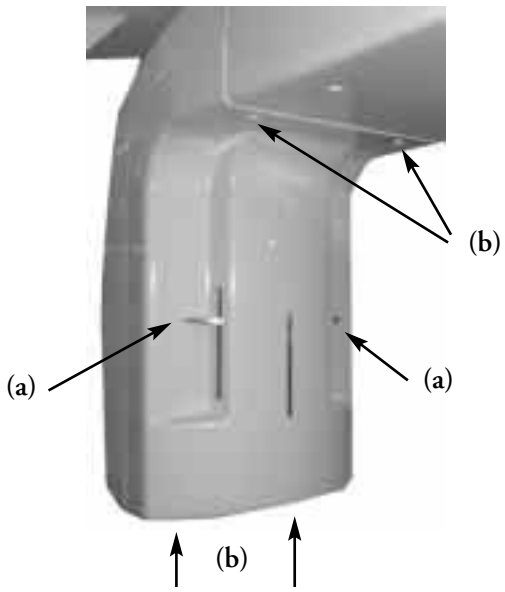
Cover on the digital sensor

1. Switch off the device and remove the 4 screws (a) while supporting the cover.
2. Remove the cover downward while taking care not to damage the arms of the head clamp.



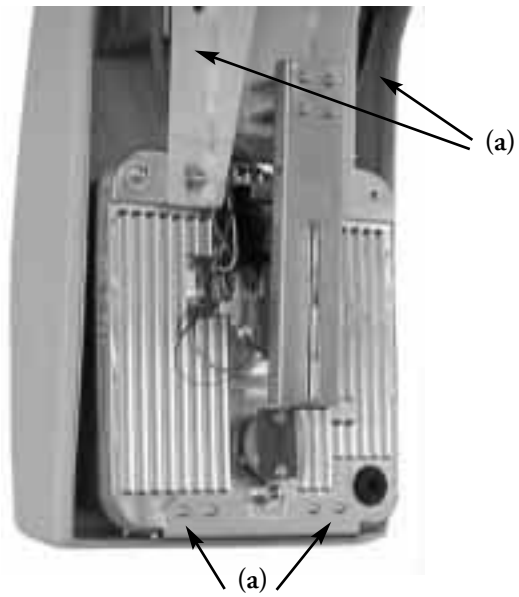
Front cover of the radiogenic unit

1. Switch off the device.
2. Remove the adjustement knobs of the Frankfurt laser (a).
3. 3. Remove the 4 screws (b) while supporting the cover.



Rear cover of the radiogenic unit

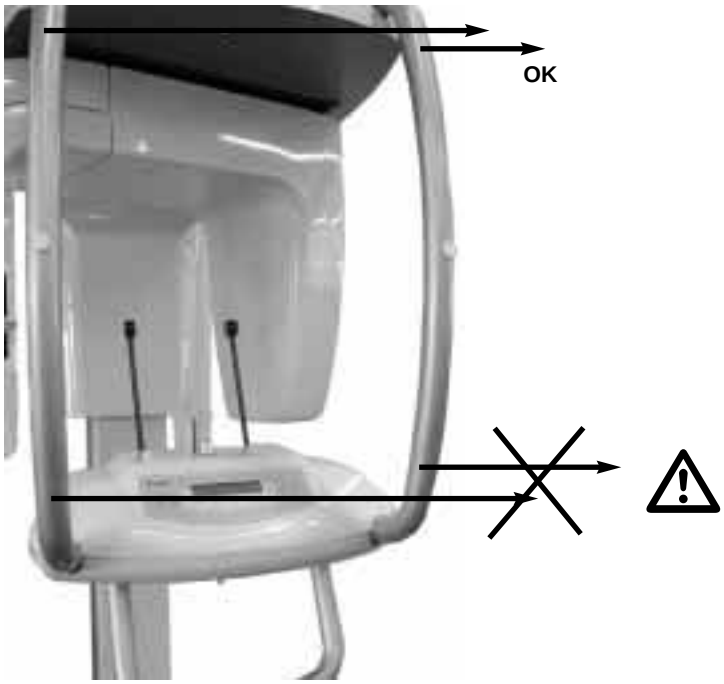
1. Switch off the device and remove the front cover from the radiogenic unit (see above).
2. Then remove the 4 screws (a) while supporting the rear cover.

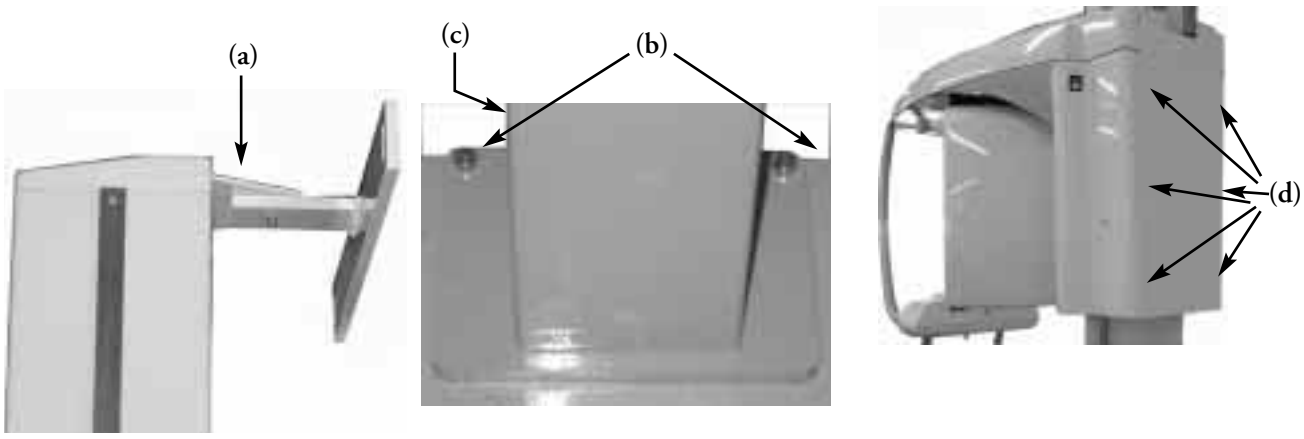


Slider unit closing panel

1. Switch off the device.
2. Remove the cover of the terminal box on the rear column, 4 screws.
3. Untight the screw (a) securing the square bracket to the column, without never removing it.
4. Remove the 2 lateral screws (b) securing the column to the floor and slacken the center screw (c), without removing it.
5. Rotate the device in order to gain access to the rear of the column.
6. Remove the 6 screws (d).

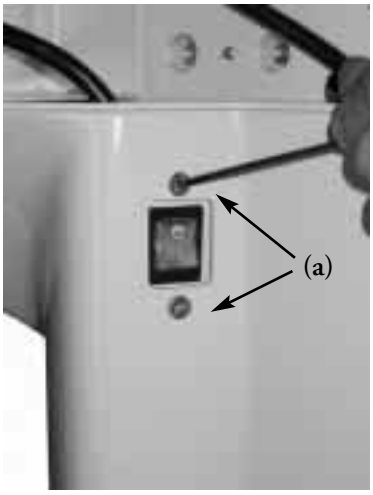
WARNING Do not rotate the device by gripping the lower part of the patient support tubes; use the upper part of the tubes.

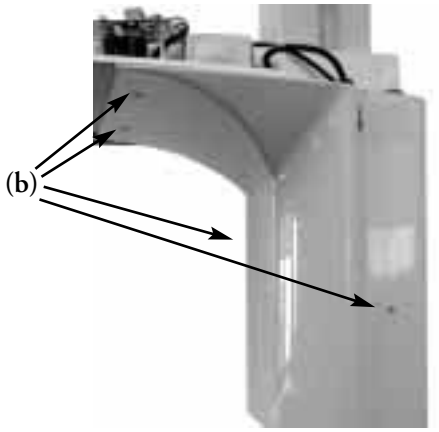




Slider unit cover

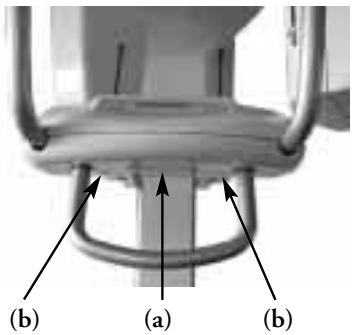
1. DISCONNECT THE DEVICE FROM ITS POWER SUPPLY, remove the slider unit closing cover and the top cover (see above).
2. Remove the ON/OFF button, 2 screws (a).
3. Remove the 4 screws (b) while supporting the cover, slide it downward and then withdraw the column from the front.

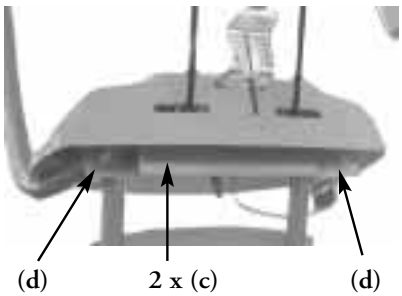


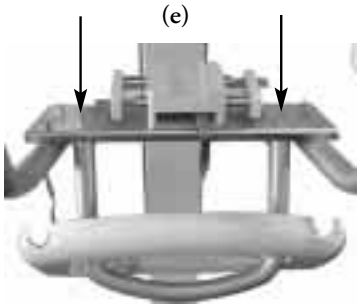


Lower and upper cover of the control panel

1. Switch off the device.
2. Remove the knob (a) adjusting the head clamp.
3. Remove the 2 screws (b); the lower cover remains attached to the patient handle.
4. Remove the arms of the head clamp, 2 screws (c).
5. Remove the 2 screws (d). WARNING: these screws are accessible via the interior of the patient handle beneath the control panel, in order to remove the upper cover of the control panel.
6. Remove the patient handle, 2 screws (e).
7. Withdraw the lower cover.



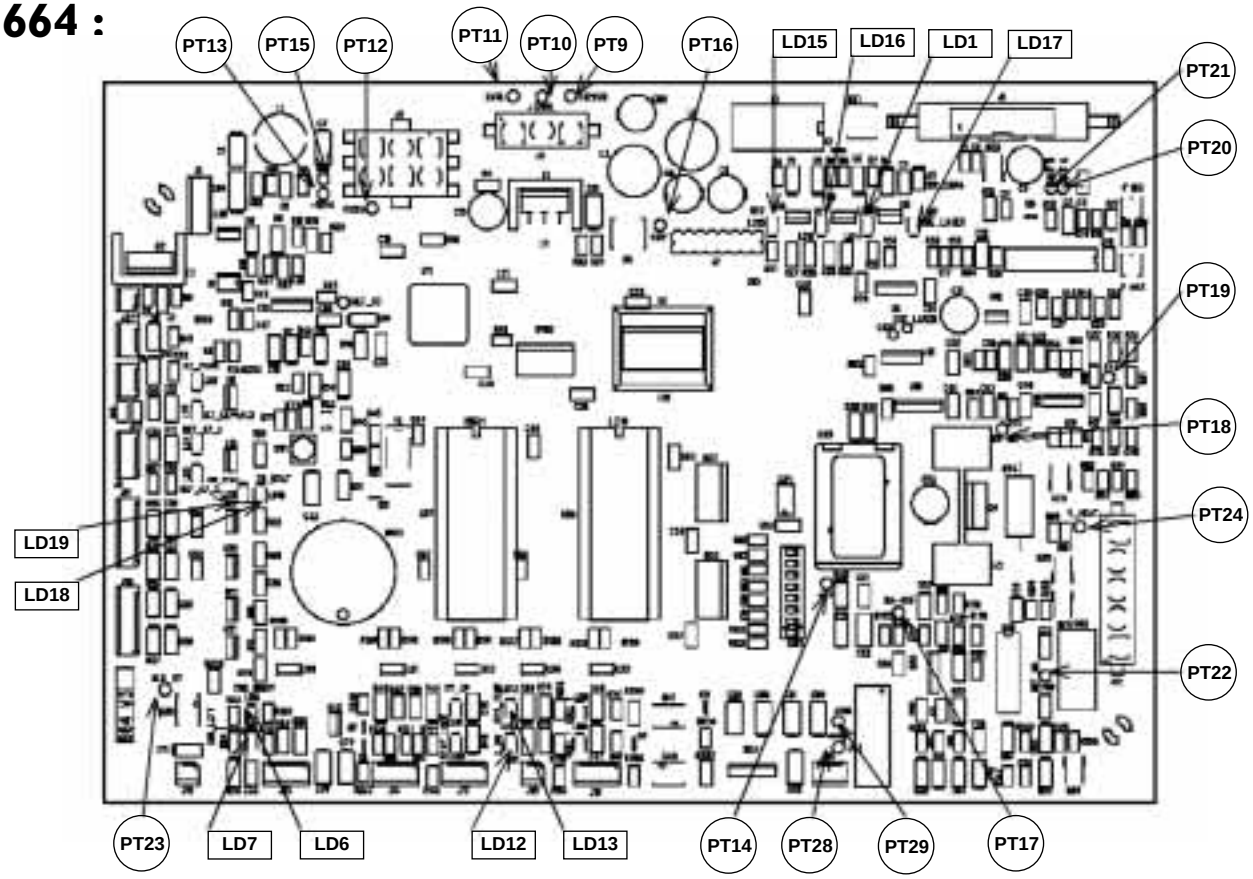




LOCATION AND TEST SIGNALS

WARNING The device must be switched off before the covers are removed.
Any work which has to be carried out on the device while it is switched on and while the covers are removed must be undertaken by an approved Trophy technician.
Unqualified persons must not approach the device.

CJ664 :



Ref.	Name	Value	Remarks
PT9	+12VSW	9 to 15 VDC (depending on the mains voltage)	
PT10	+12VRL	9 to 15 VDC (depending on the mains voltage)	Supplies power to the relays and the inputs/outputs on the CJ664 board. Inactive in the event of an error.
PT11	0VRL	0 V from the 12VRL and from the 12VSW	Connected to ground.
PT12	+12VA	11.5 to 12.5 VDC	Supplies power to the analog section of the CJ664 board and to control of the MOSFET's on the CJ653 board. The +5V of the microprocessor is generated from this voltage.
PT13	-12VA	-11.5 to -12.5 VDC	Supplies power to the analog section of the CJ664 board.
PT14	+6V	6.45 to 6.55VDC	Supplies power to the filament heating circuit on the CJ664 board.
PT15	GND	0 V from the +12VA, -12VA and from the +6V	Connected to ground.
PT16	+5V	4.7V to 5.3VDC	Supplies power to the digital section of the CJ664 board.
PT17	MA-REF	4mA / V	mA set value Active during the emission of X-rays.

Ref.	Name	Value	Remarks
PT18	KV-REF	20 kV / V	kV set value. Active during the emission of X-rays.
PT19	kV	20 kV / V	kV return. Active during the emission of X-rays.
PT20	OUTA	Square-wave signal. Complementary to OUTB. 0 or12 V from 30 kHZ to 70 kHz	MOSFET command signal. The frequency increases when the power demand decreases. Active during the emission of X-rays.
PT21	OUTB	Square-wave signal Complementary to OUTA. 0 or12 V from 30 kHZ to 70 kHz	MOSFET command signal. The frequency increases when the power demand decreases. Active during the emission of X-rays.
PT22	RET-MA	4 mA / V	mA return. Active during the emission of X-rays.
PT23	CLK-K7	Square-wave signal. 0 or12 V from 100 HZ to 300 Hz	Clock for acquisition of the columns from the digital sensor. Active during the emission of X-rays.
PT24	V-HEAT	4 to 6 VDC	Power supply voltage to the filament.
PT28	5VRS	4.8 to 5.2 VDC	Power supply isolated from the RS232 link.
PT29	0VRS	0 V from the 5VRS	Not connected to ground.

Ref.	Name	Function	Remarks
LD1	ERR -CAPA	Illuminated in the case of an E11 error.	Red.
LD6	END -RIGHT	Illuminated when the left-hand limit switch is activated.	
LD7	END -LEFT	Illuminated when the right-hand limit switch is activated.	
LD12	X-SW	Illuminated when the exposure button is activated	
LD13	ERR -TEMP	Illuminated when the thermal switch of the radiogenic unit is closed.	During normal operation, the LED is illuminated. If the LED is not illuminated, the temperature of the radiogenic unit is greater than 65 °C.
LD14	LIGHT	lluminated when the relay relay used for connecting a safety lamp is energized.	This LED is illuminated in the 'Ready' state and during the emission of X-rays.
LD15	RE2	Illuminated when relays K1 and K3 on the CJ653 board are energized.	During the emission of X-rays.
LD16	RE1	Illuminated when relay K2 on the CJ653 board is energized.	During preheating and the emission of X-rays.
LD17	CDE -LASER	Illuminated when the lasers are switched on.	
LD18	EN -STAT	Illuminated when relay K1 on on the CJ699 board is energized.	Motor running.
LD19	CW -STAT	Illuminated when relay K2 on on the CJ699 board is energized.	Motor rotating counter-clockwise.

Power supply to the Panoramic unit

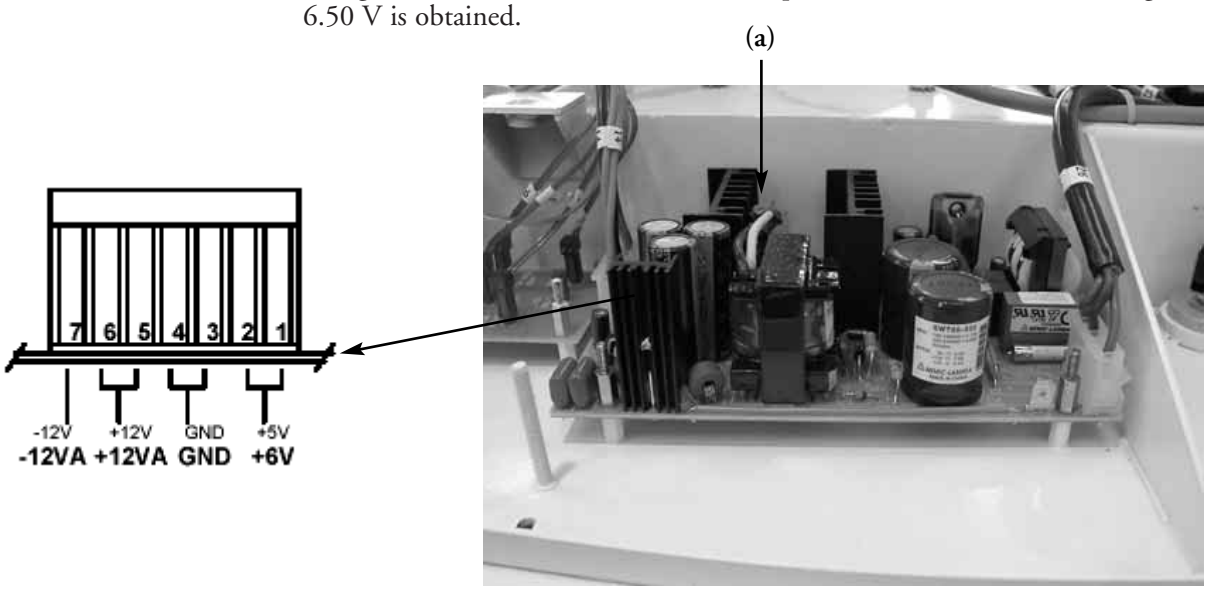
This is a AC / DC, +/- 12 V / 5 V, 60 W power supply. It generates the low voltage for all the TROPHYPAN electronic devices.

Test point on the CJ664 board	Voltage	Value	Remarks
PT12	+12VA	11.5 to 12.5 VDC	Supplies power to the analog section of the CJ664 board and to the control of the MOSFET's on the CJ653 board. The +5V of the microprocessor is generated from this voltage.
PT13	-12VA	-11.5 to -12.5 VDC	Supplies power to the analog section of the CJ664 board.
PT14	+6V	6.45 to 6.55VDC	Supplies power to the filament heating circuit on the CJ664 board. Refer to the settings below.
PT15	GND	0 V of the +12VA, -12VA and the +6V	Connected to ground.

Adjusting the +6 V power supply (voltage of the filament heating circuit):

WARNING THIS ADJUSTMENT MUST BE MADE WHILE THE DEVICE IS SWITCHED ON. HAZARDOUS VOLTAGES ARE PRESENT ON THE POWER SUPPLY. UNQUALIFIED PERSONS MUST NOT APPROACH THE DEVICE.

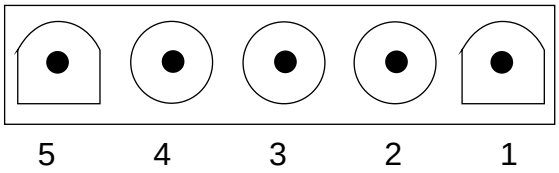
1. Connect a DC voltmeter between test points PT14 and PT15 on the CJ664 board.
2. Using an insulated screwdriver, rotate the potentiometer (a) until a reading of 6.50 V is obtained.



Checking the radiogenic unit

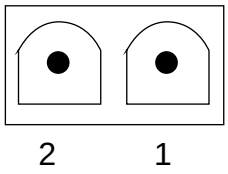
1. Switch off the device and remove the top cover.

2. Disconnect J12 on the CJ664 board. The values on the connector of cable 16, expressed in ohms, must be as indicated below.



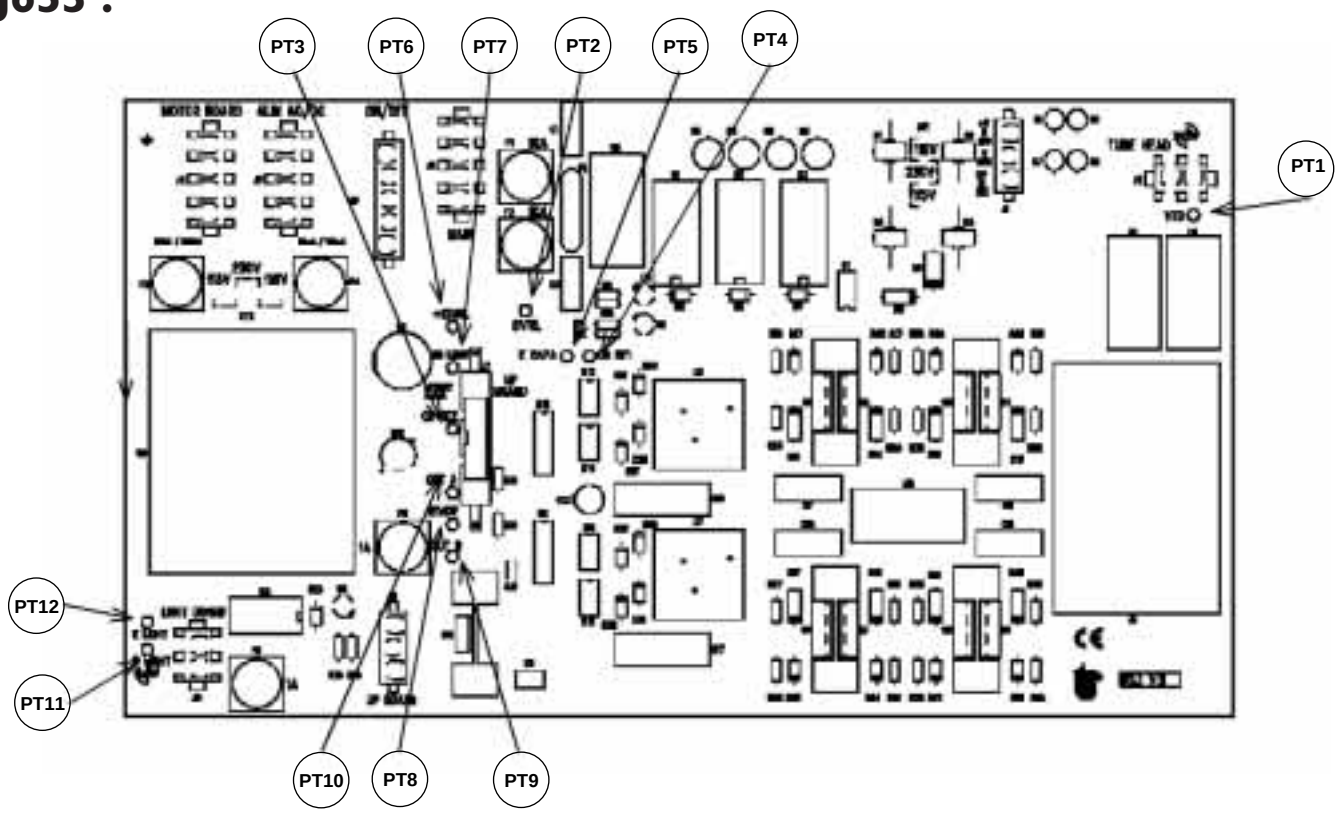
J12 on connecting cable 16	Values	Remarks
Between 1 and 2	32 < < 34 kΩ	kV measurement resistor.
Between 1 and 3	< 2 Ω	Thermal cutout. Close if the temperature of the radiogenic unit is less than 65 °C. (normal)
Between 1 and 4	247 < < 253Ω	mA measurement resistor.
Between 1 and 5	< 2 Ω	Filament resistor.

3. Disconnect J3 on the CJ653 board. The values on the connector of cable 24, expressed in ohms, must be as indicated below.



J3 on connecting cable 24	Values	Remarks
Between 1 and 2	< 2 Ω	Primary winding of the high voltage transformer.

CJ653 :



Ref.	Name	Value	Remarks
PT1	VTB	Square-wave signal. Complementary to VTB. 0 or 350 V from 30 kHZ to 70 kHz. WARNING: HAZARDOUS VOLTAGE! THIS SIGNAL MUST BE MEASURED WITH AN INSULATED INSTRUMENT WHICH IS NOT CONNECTED TO GROUND!	Output signal from the H bridge, supplies power to the HT transformer of the radiogenic unit. The frequency increases when the power demand decreases. Active during the emission of X-rays.
PT2	0VRL	0 V from the 12VRL and from the 12VSW	Connected to ground.
PT3	CD -RE2	0 V or 9 to 15 VDC	Active during the emission of X-rays. Control of K1 and K3.
PT4	CD -RE1	0 V or 9 to 15 VDC	Active during the emission of X-rays. Control of K2.
PT5	E-CAPA	0 V or 9 to 15 VDC	0 V in the event of Error E11.
PT6	+12VRL	9 to 15 VDC (depending on the mains voltage)	Supplies power to the relays and the inputs/outputs to/from the CJ664 board. Inactive in the event of an error
PT7	CD -LIGHT	0 V or 9 to 15 VDC	Active if the relay used to connect a safety lamp is energized. Control of K4.
PT8	+12VSW	9 to 15 VDC (depending on the mains voltage)	
PT9	OUTB	Square-wave signal. Complementary to OUTA. 0 or12 V from 30 kHZ to 70 kHz	MOSFET command signal. The frequency increases when the power demand decreases. Active during the emission of X-rays.

Ref.	Name	Value	Remarks
PT10	OUTA	Square-wave signal. Complementary to OUTB. 0 or12 V from 30 kHZ to 70 kHz	MOSFET command signal. The frequency increases when the power demand decreases. Active during the emission of X-rays.
PT11	R-LIGHT	Contact used to connect an X-ray safety lamp.	250 V max / 1 A max
PT12	E-LIHT	Contact used to connect an X-ray safety lamp	250 V max / 1 A max

REPLACING THE FUSES

WARNING The device must be switched off before the covers are removed. Any work which has to be carried out on the device while it is switched on and while the covers are removed must be undertaken by an approved Trophy technician. Unqualified persons must not approach the device.

CAUTION On the CJ653 board, the marking corresponding to fuses F1 and F2 only applies to devices connected to a 230 V power supply. 20 A* fuses must be inserted if the device is connected to a 110 V power supply.

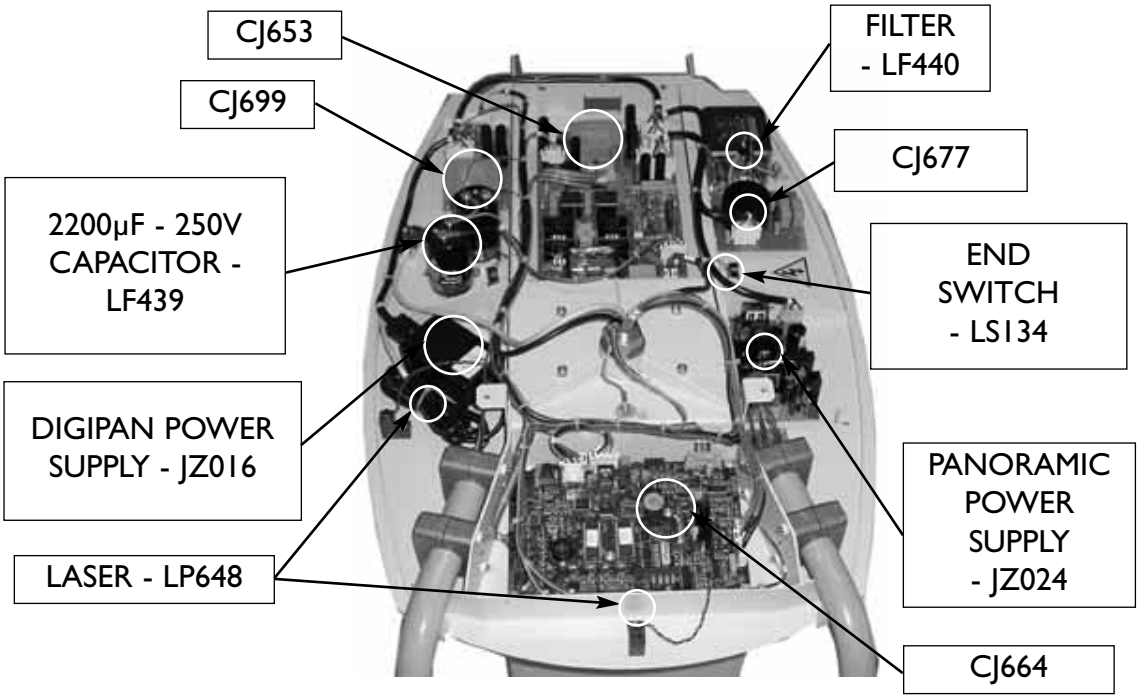
CJ653

Ref.	Code	Characteristics	Remarks
F1/ F2 at 110 V	LW109	20A - 6.3 x 32 - F – UL * see above	Protects the power section of bridge H.
F1 /F2 at 230 V	LW161	10A - 6.3 x 32 - F - UL	Protects the power section of bridge H.
F3 / F4 at 110 V	LW179	125mA – 5x20 – T – UL and IEC127	Protects the primary winding of the 12 VRL transformer.
F3 / F4 at 230 V	LW180	63mA – 5x20 – T – UL and IEC127	Protects the primary winding of the 12 VRL transformer.
F5	LW156	1A – 5x20 – T – UL and IEC127	Protects the 12 VRL
F6	LW156	1A – 5x20 – T – UL and IEC127	Protects the contact of the X-ray safety lamp.

CJ699

Ref.	Code	Characteristics	Remarks
F1/ F2 at 110 V	LW177	630mA – 5x20 – T – UL and IEC127	Protects the primary winding of the mains transformer of the electric linear actuator.
F1 /F2 at 230 V	LW178	315mA – 5x20 – T – UL and IEC127	Protects the primary winding of themains transformer of the electric linear actuator.
F3 / F4 at 110 V	LW183	250mA – 5x20 – T – UL and IEC127	Protects the motor.
F3 / F4 at 230 V	LW179	125mA – 5x20 – T – UL and IEC127	Protects the motor.

POSITION OF THE ELECTRONIC COMPONENTS BENEATH THE TOP COVER



Replacing non-adjustable components

WARNING The device must be switched off before the covers are removed. Any work which has to be carried out on the unit while it is switched on and while the covers are removed must be undertaken by an approved Trophy technician. Unqualified persons must not approach the unit.

- CJ653 board
- CJ699 board
- CJ677 board
- Filter: LF440
- 2200 µF – 250 V capacitors: LF439.
- Power supply to the DIGITAL TRANSDUCER: JZ016.

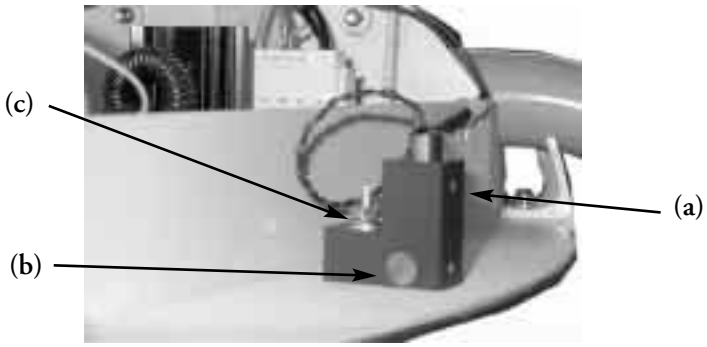
1. BEFORE REMOVING THE COMPONENT, SWITCH OFF THE DEVICE AND MARK THE POSITION OF THE CONNECTORS AND CONNECTIONS.
2. Disconnect the connectors and remove the mountings.
3. Replace the component.
4. Reconnect the connectors, as before.
5. Switch on the device. It is now ready for operation.

Replacing the CJ664 board

1. BEFORE REMOVING THE COMPONENT, SWITCH OFF THE DEVICE AND MARK THE POSITION OF THE CONNECTORS AND CONNECTIONS.
2. Disconnect the connectors and remove the mountings
3. Replace the component.
4. Reconnect the connectors, as before.
5. Switch on the device.
6. Reload the calibration parameters; refer to the paragraph "Save/Restore' menu' on page 93.
7. Follow the procedure for calibrating the mA values and the heating; refer to 'mA Calibration' menu and 'Heater Voltage Calibration' menu on pages 89 and 90.

Replacing the 'sagittal median' laser: LP648

1. Switch off the device before removing the component.
2. Remove the upper head cover.
3. Desolder the laser wires from connecting cable 5, CP875 (Brown ➜ Black / Red ➜ Red).
4. Untight the screw (a), without removing it, and remove the defective laser from its mounting (b).
5. Solder the wires of connecting cable 5 to the wires of the new laser (Brown ➜ Black / Red ➜ Red). and insulate the connection.
6. Switch on the device.
7. Fit the laser into its mounting and focus the laser so that the beam is as fine as possible.
8. Secure the laser to its mounting by tightening the screw (a).
9. Slightly untight the nut (c) and check the adjustment of the lasers; refer to the paragraph 'Checking and adjusting the lasers' on page 80.



Replacing/repositioning the 'canine' laser: LP648

If the starting position of the Panoramic unit does not correspond to the position of the canine laser, it may be necessary to move the laser to the right or to the left side of the unit.

If the entry of the patient is on left, the laser must be positioned on the right, and vice-versa.

1. Switch off the device before removing the component.

2. Remove the upper head cover.

3. Desolder the laser wires from connecting cable 5, CP875 (Brown ➜ Black / Red ➜ Red).

4. Untight the screw (a), without removing it, and remove the defective laser from its mounting (b).

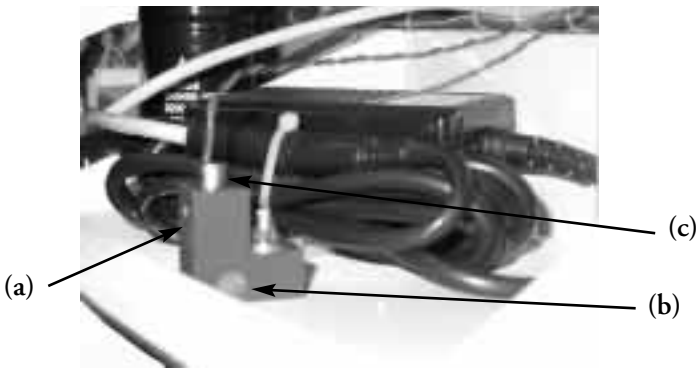
5. Solder the wires of connecting cable 5 to the wires of the new laser (Brown ➜ Black / Red ➜ Red) and insulate the connection.

6. Switch on the device.

7. Fit the laser into its mounting and focus the laser so that the beam is as fine as possible.

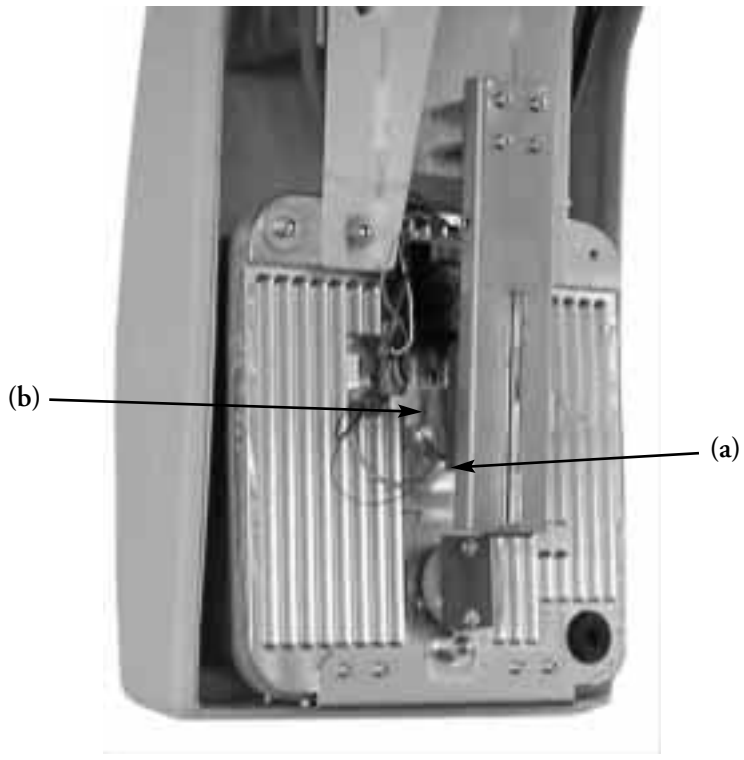
8. Secure the laser to its mounting by tightening the screw (a).

9. Slightly untight the nut (c) and check the adjustment of the lasers; refer to the paragraph 'Checking and adjusting the lasers' on page 80.



REPLACING THE 'FRANKFURT PLANE' LASER LP648

1. Switch off the device before removing the component.
2. Remove the adjusting knobs of the laser and the front cover of the radiogenic unit.
3. Desolder the laser wires from connecting cable 6 , CP876 (Brown ➜ Black / Red ➜ Red).
4. Slacken the screw (a) situated beneath the mounting, without removing it, and remove the defective laser from its mounting (b).
5. Solder the wires of connecting cable 6 to the wires of the new laser (Brown ➜ Black / Red ➜ Red) and insulate the connection.
6. Switch on the device.
7. Fit the laser into its mounting and focus the laser so that the beam is as fine as possible and is perfectly horizontal.
8. Check the adjustment of the lasers; refer to the paragraph 'Checking and adjusting the lasers' on page 80.
9. Secure the laser to its mounting (b) by tightening the screw (a).



REPLACING THE RADIOGENIC UNIT

1. Switch off the device before removing the component.

2. Remove the adjusting knobs of the laser, the front cover and the rear cover from the radiogenic unit.

3. Remove the primary collimator, attached to the radiogenic unit by the 5 screws (b).

4. Disconnect the connector from the radiogenic unit (c).

5. Remove the defective radiogenic unit and replace it, securing it with the 4 screws (d).

6. Refit the components in the reverse order.

7. Check the dimension between the surface of the lower mounting bracket of the radiogenic unit and the lower edge of the digital sensor. This dimension should be 461 mm.

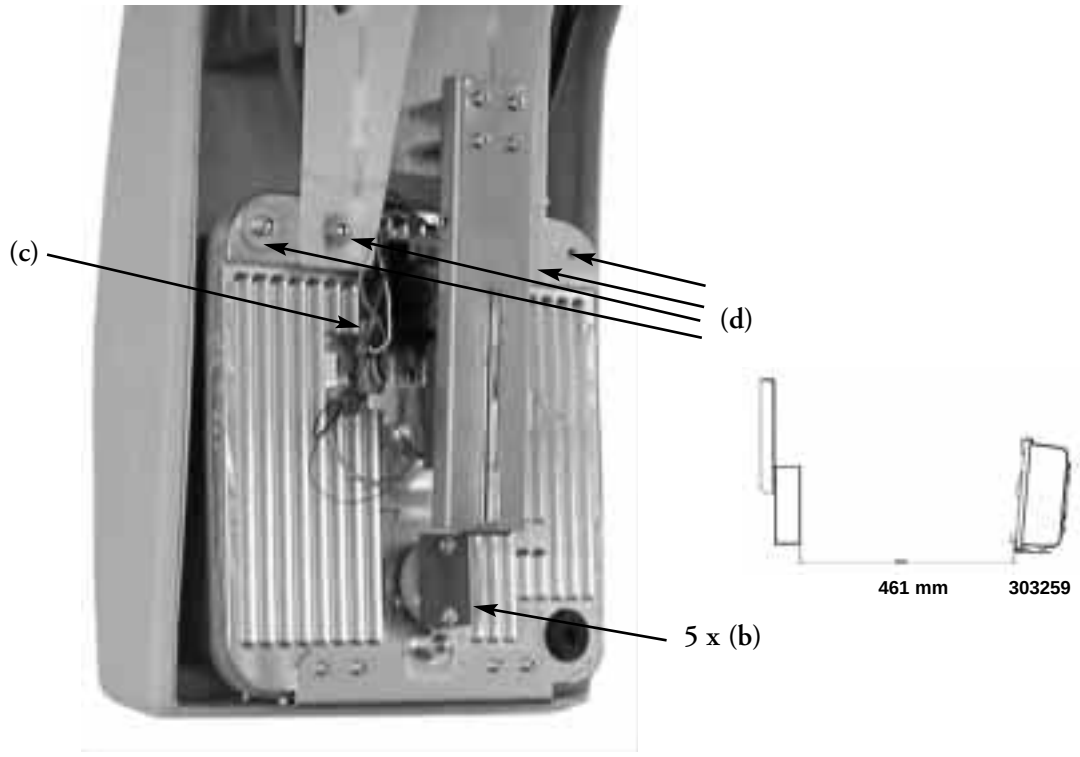
8. If this is not the case, insert washers as shims between the screws (d) in order to adjust the dimension.

9. Follow the procedure for calibrating the mA values and the heating; refer to 'mA Calibration' menu and 'Heater Voltage Calibration' menu on pages 89 et 90.

10. Adjust the collimator; refer to the paragraph 'Adjusting the collimator' on page 75.

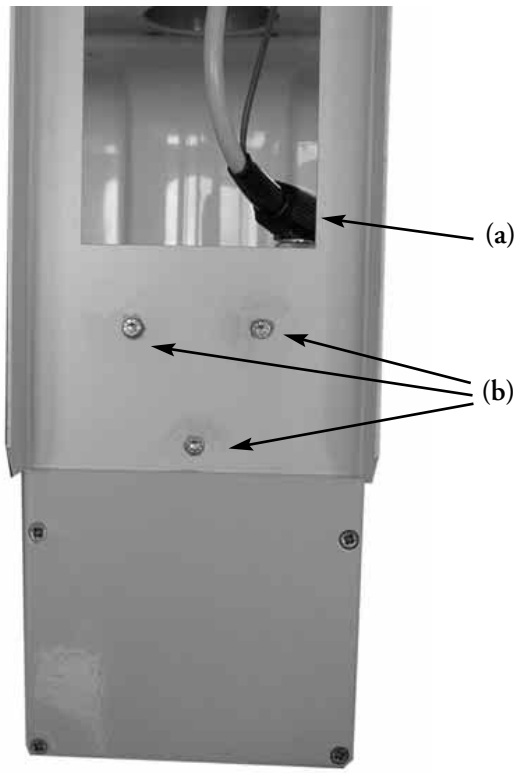
11. Check the position of the layer plane; refer to the paragraph 'Checking and adjusting the layer plane' on page 79.

12. Check the adjustment of the lasers; refer to the paragraph 'Checking and adjusting the lasers' on page page 80.



REPLACING THE DIGITAL SENSOR

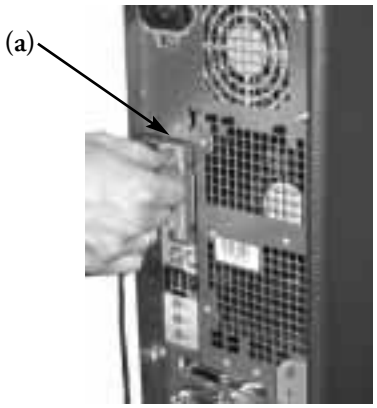
1. Switch off the device before removing the component.
2. Remove the cover of the digital sensor.
3. Disconnect the connector from the enclosure of the digital sensor (a).
4. Remove the defective digital sensor and replace it vertically with the mounting frame.
5. The enclosure is attached to the device by the 3 screws (b).
6. Reconnect the connector of the digital sensor.
7. Adjust the collimator; refer to the paragraph 'Adjusting the collimator' on page 75.
8. Check the position of the layer; refer to the paragraph 'Checking and adjusting the layer' on 79.
9. Check the adjustment of the lasers; refer to the paragraph 'Checking and adjusting the lasers' on page 80.

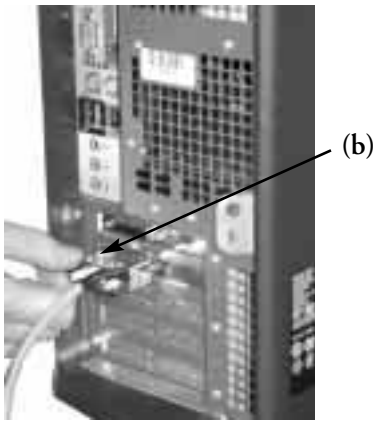


REPLACING THE PCI BOARD

Before removing the PC, switch off the device and disconnect the mains cable.

1. Disconnect the RS 232 cable (COM 1/2) (a) and the RS 422 cable (PCI board) (b).





2. Replace the PCI board.
Close the computer.

3. Connect the RS 232 cable (COM 1/2) (a) and the RS 422 cable (PCI board) (b).

4. Check that the operating system has detected the PCI card and its driver.

REPLACING THE MOTOR AND THE OPTICAL ENCODER

1. Switch off the device before removing the component.

2. Remove the cover of the digital sensor.

3. Insert a shim (a) between the motor mounting frame and the guide track, so that the driving wheel (b) is no longer in contact.

4. Mark the position of the wheel on the motor shaft, unscrew the 2 screws (c) located at the rear of the wheel and remove the wheel.

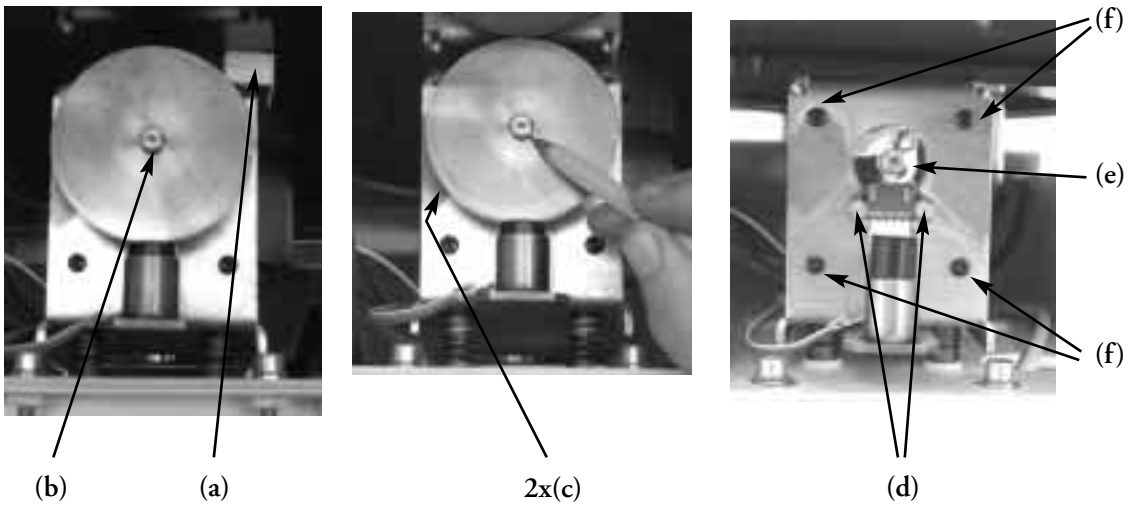
5. Unscrew the 2 screws (d) and remove the optical encoder, taking care not to damage the code wheel (WARNING: THE CODE WHEEL IS VERY FRAGILE).

6. Unscrew the screw (e) and carefully remove the code selector from the motor shaft.

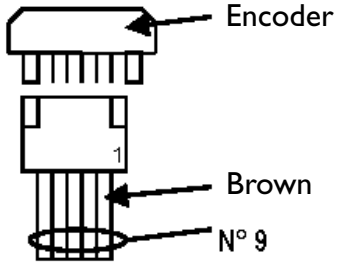
7. Unscrew the 4 screws (f) attaching the motor to its mounting frame while holding the nuts (f) located at the rear of the reduction gearbox.

8. Replace the motor, refit the components in reverse order of disassembly. The wheel must be refitted at the marked position.

9. Calibrate the movement; refer to the paragraph 'Calibrating the stand' menu' on page 91.



Wiring of the optical encoder:

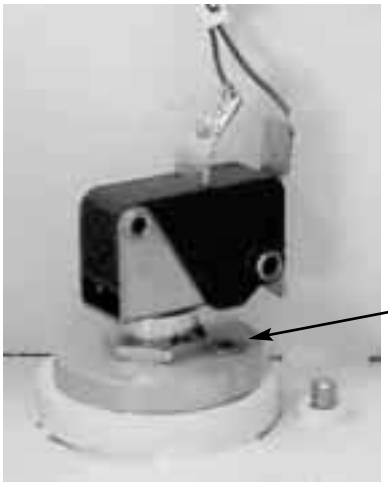


REPLACING THE LIMIT SWITCHES

1. Switch off the device before removing the component.
2. Remove the top cover.
3. Mark the position of the wires on the limit switch.
4. Desolder the wires of connecting cable 8 on the limit switch.
5. Unscrew the locknut (a) and remove the limit switch.
6. Bend the terminals of the new limit switch to the same shape as those on the limit switch which has just been removed.
7. Fit the new limit switch and adjust the height of the roller by placing the arm beneath it and screwing in the limit switch until it is activated.

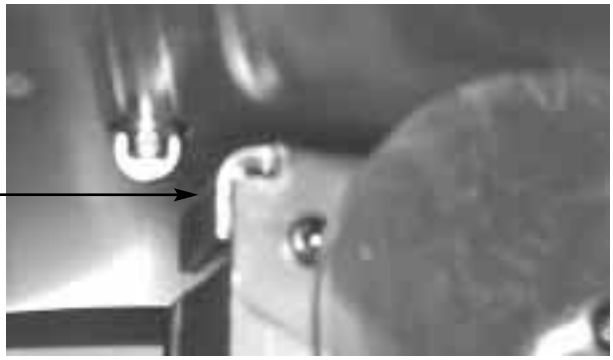
⚠

8. The roller must be aligned with the direction of movement and the right and left rollers must be at the same height.
9. Tighten the locknut.
10. Solder the wires to the new limit switch.
11. Calibrate the movement; refer to the paragraph 'Calibrating the stand' menu on page 91.



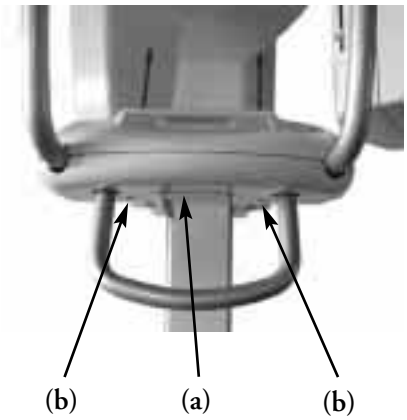
Direction of the movement and direction of the roller

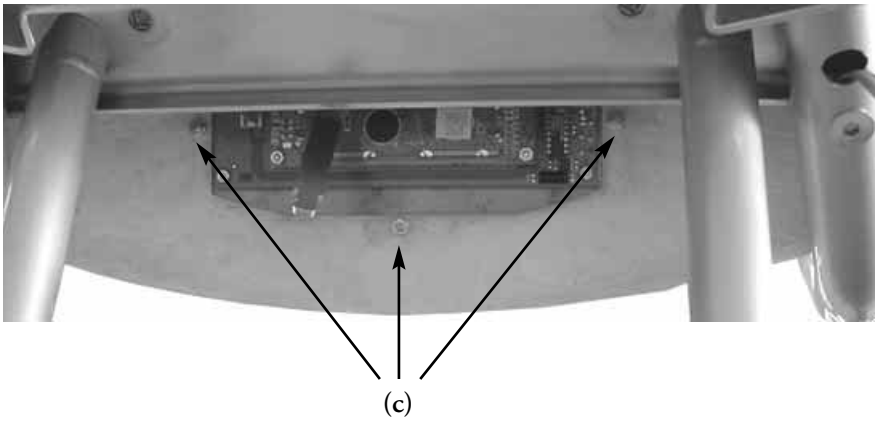
⚠

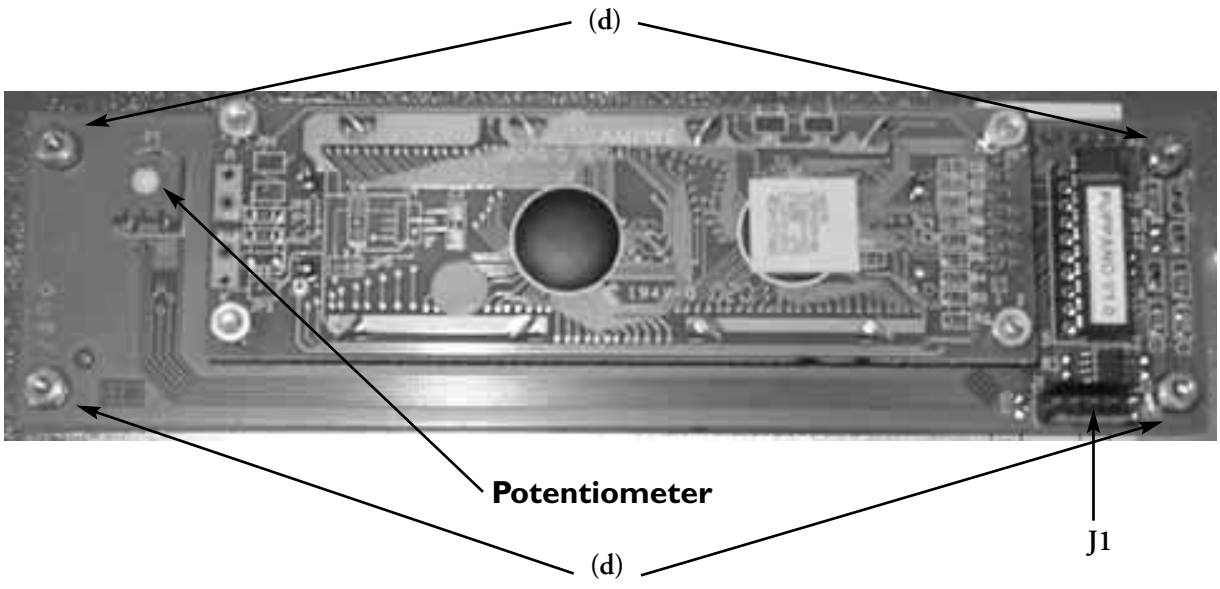


REPLACING THE CONTROL PANEL

1. Switch off the device before removing the component.
2. Remove the knob (a) for adjusting the arms of the head clamp.
3. Remove the 2 screws (b) from the upper cover of the control panel. The cover remains suspended by the handle
4. Disconnect jumper J1 from the CJ687 board.
5. Unscrew the 3 nuts (c) and remove the control panel.
6. To remove the CJ687 board, unscrew the securing nuts (d) on the front panel, taking care on the position of the insulation washers.
7. Refit the components in reverse order to disassembly.
8. Note: A potentiometer for adjusting the contrast of the display screen is accessible beneath the board.

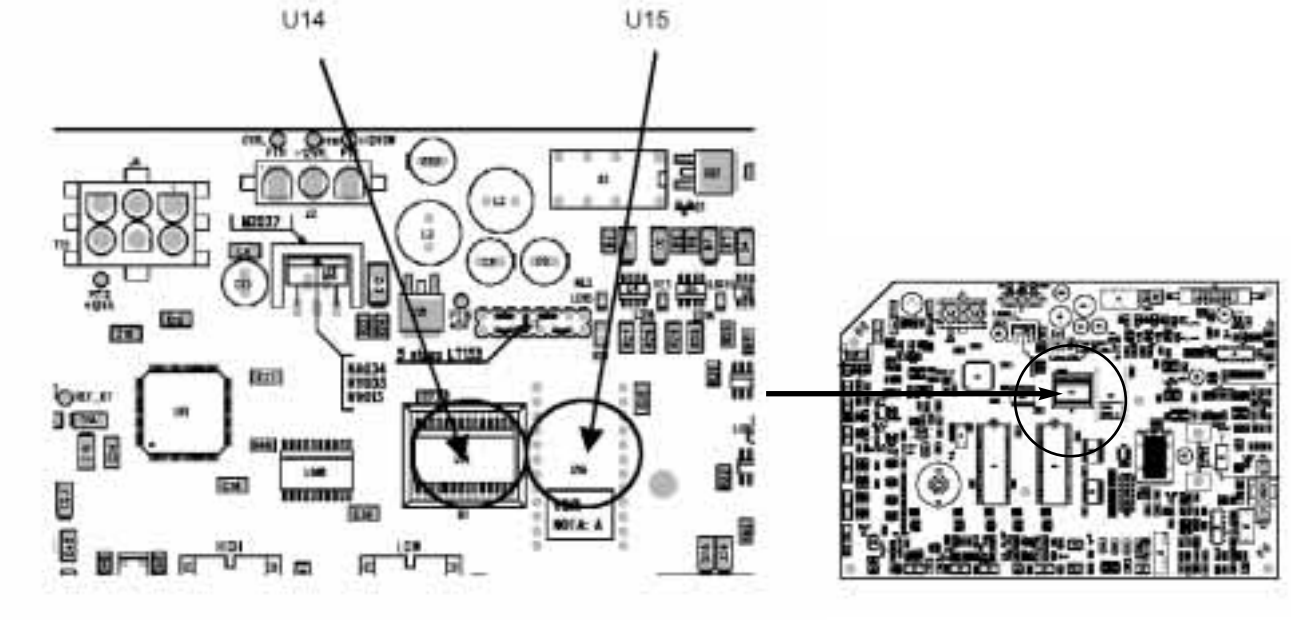






REPLACING THE BATTERY ON THE CJ664 BOARD

WARNING The batteries must not be incinerated or discarded into the environment. They must be taken to the collection points for used batteries.

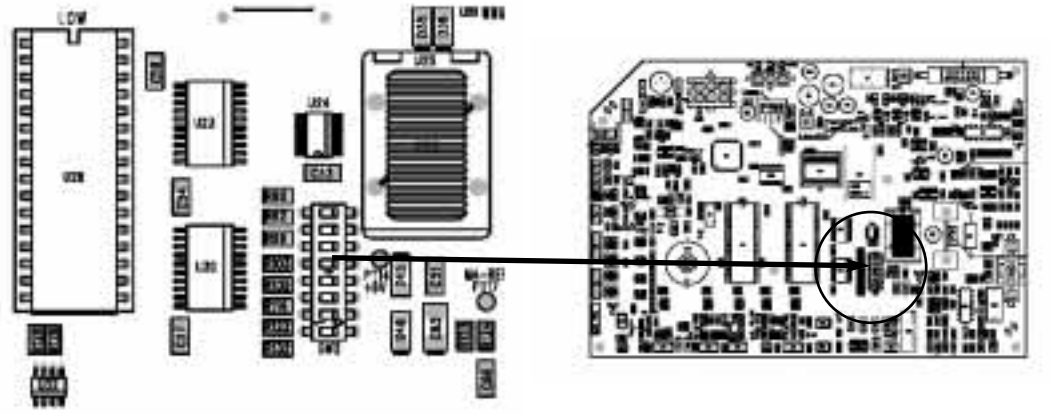


1. Switch off the device before removing the battery.
2. Remove the top cover.

WARNING There are 2 types of battery.

3. IF YOUR BATTERY IS LOCATED IN U14:
   ORDER A NEW BATTERY, TROPHY CODE IS206.
   USING A TOOL, REMOVE THE UPPER PART AND REPLACE IT WITH THE NEW BATTERY.
4. IF YOUR BATTERY IS LOCATED IN U15:
   ORDER A NEW BATTERY, TROPHY CODE LP621.
   THE BATTERY IS FITTED IN AN IC SOCKET. NOTE THE POSITION OF INSERTION. REMOVE THE BATTERY AND REPLACE IT WITH THE NEW BATTERY, TAKING CARE THAT NONE OF THE PINS ARE BENT OR INCORRECTY INSERTED INTO THE SOCKET.

POSITION OF THE DIP SWITCHES ON THE CJ664 BOARD



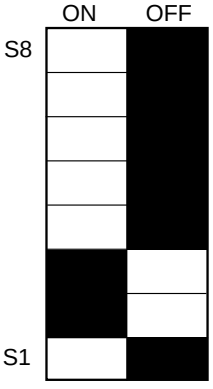
S1	Operating mode
OFF	Emission of X-rays during the exposure (Normal operation)
ON	No emission of X-rays during the exposure (only for demonstration at an exhibition, for example)

S2	S3	Communication speed on the RS232 link between TROPHYPAN and the PC WARNING: THIS SPEED MUST BE IDENTICAL TO THE SPEED SELECTED IN TROPHY WINDOWS. It may be reduced in the event of an excessively frequent communication error.
OFF	OFF	9600 Baud
ON	OFF	38400 Baud
OFF	ON	19200 Baud
ON	ON	57600 Baud

S5	Movement reset button
OFF	Press once to initiate movement, press again to stop the movement (regardless of which button is used).
ON	Movement ceases if it was initiated from the TROPHYPAN control window and if the window is closed or deactivated prematurely.

S4 and S6 to S8: not used

For example: Emission of X-rays during the exposure, 57600 baud.



REPLACING AND ADJUSTING THE HEAD CLAMP

1. Switch off the device before removing the component.

2. Remove the knob (a) adjusting the arms of the head clamp.

3. Remove the 2 screws (b) from the lower cover of the control panel. The cover remains suspended by the handle.

4. Unscrew the 2 screws (c) and remove the arms of the head clamp.

5. Disconnect jumper J1 from the CJ691 board.

6. Unscrew the 2 screws (d), located beneath the upper cover, via the tubes and remove the cover.

7. Unscrew the 2 screws (e) located beneath the head clamp and remove the head clamp.

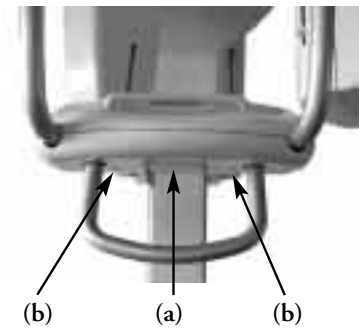
⚠ **8.** MARK THE POSITION OF THE LABEL (G), (JP720), OF THE HEAD CLAMP AND AFFIX A NEW LABEL IN EXACTLY THE SAME POSITION ON THE NEW HEAD CLAMP.

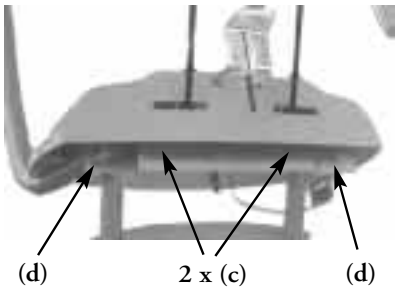
9. Refit the head clamp without tightening the 2 screws (e), the upper cover and the arms. Reconnect J1 to the CJ691 board and replace the pan chin rest with the ball phantom on the head clamp in position 0.

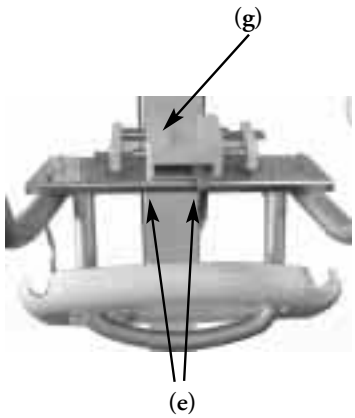
10. Switch on the lasers and adjust the position of the head clamp so that the beams intersect at the top of the central ball.

11. Tighten the head clamp.

12. Refit the lower cover and the adjustment knob.



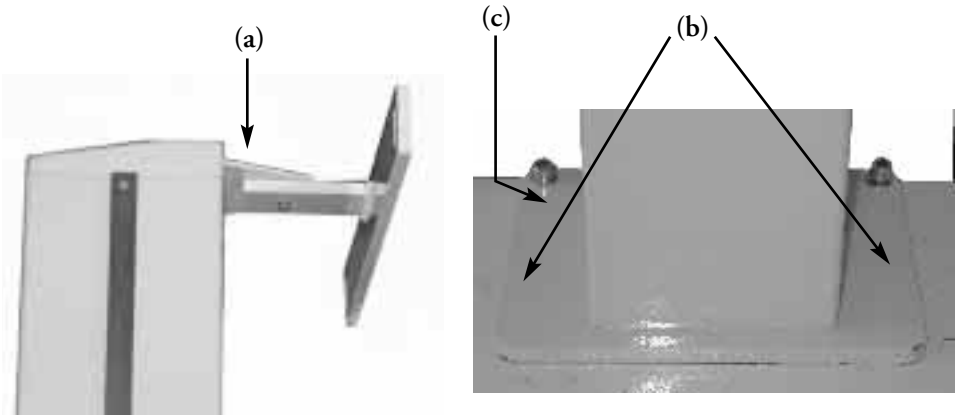




REPLACING THE ELECTRIC LINEAR ACTUATOR

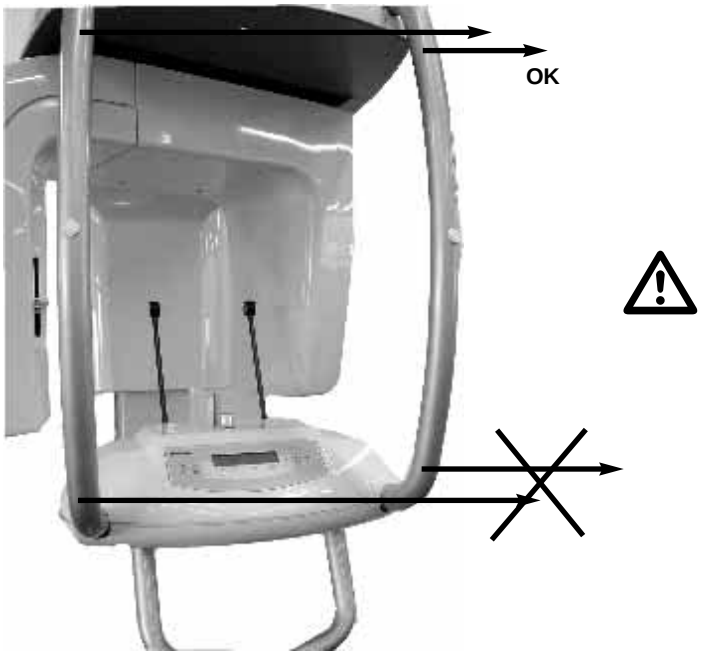
WARNING In case the linear actuator is out of order or blocked in any position, **you must get assistance to perform this operation.**
To replace the linear actuator you must support the unit, as it can stop working at any height, with a wood stud of the determined length from the bottom of the sliding carriage to the floor +1 cm and must support 60 kg.
Another solution is to suspend the sliding unit carriage to the wall-bracket with a strap that withstands also 60 kg.
During this operation, make sure that no other persons are near the unit.

1. Switch off the unit before any removal of defective parts
2. Remove the rear cover of the terminal box (4 screws) and the top cover of the unit.
3. Loosen the screws (a) securing the wall-bracket to the column without removing it.
4. Remove the 2 lateral screws (b) securing the column to the floor and loosen the center screw (c) without removing it.

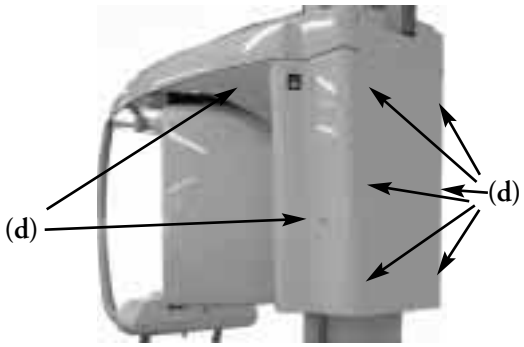


5. Rotate the unit to one side by the upper part of the vertical tubes in order to access to the rear of the column.

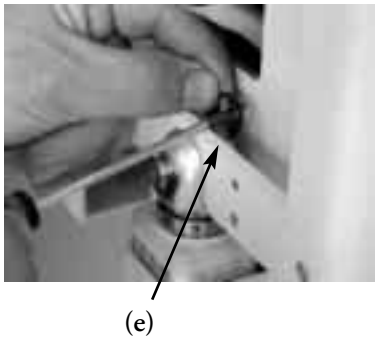
WARNING Never rotate the unit by the lower part of the vertical tubes. Use only the upper part or the sides of the main frame otherwise, the unit will be misaligned.



6. Remove the rear cover of the sliding carriage, 6 screws (d) and then the front cover, 4 screws (d).

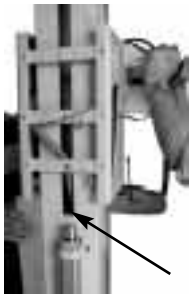


7. With a screwdriver, remove the internal retaining clip of the upper pin (e).



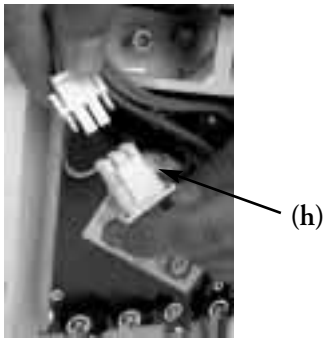
8. Lift the sliding carriage while someone else puts the wood stud on the side of the column and under the carriage (f).

WARNING In case the column is blocked at the highest position, be careful while lifting the carriage as it may come out of the side rails and damage the paint. If it happens, make sure that the carriage is in position when you lower it.
In this case, the wood stud is quite long, so make sure that it is strong enough and stable.
During this operation, make sure that no other persons are near the unit.



9. Remove the U-shaped bracket holding the actuator, 4 screws (g).

10. Unplug the power cable of the actuator (connector h) located in the bottom rear of the column.



11. With a screwdriver, remove the internal retaining clip of the lower pin, remove the pin, and remove the actuator.

12. Place a new actuator, mount the lower pin and connect the power connector (h).

13. Turn ON the unit and push one of the UP pushbuttons to extend the actuator while holding the shaft to prevent it from rotating until the holes on the groove are aligned with the mounting hole on the carriage.

WARNING During this operation, make sure that no other persons are near the unit.

14. Mount the upper pin, the U-shaped bracket, the covers, return the unit to its original position, place the 2 screws (b) and tighten the screw (a).

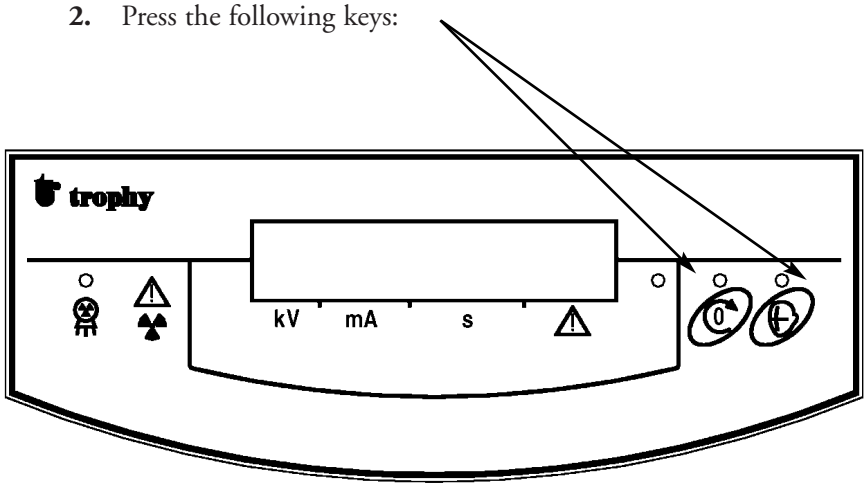
ADJUSTING THE COLLIMATOR

WARNING The technician must comply with the standards currently in force while installing and using the radiology unit.
Whenever necessary, he must use a shield or wear a lead-lined apron.

WARNING The adjustments or operations described below are delicate and may adversely affect the operation of the device.
They must be carried out by an approved Trophy technician.

Place the Panoramic unit in 'Service Mode'

1. Switch off TROPHYPAN.
2. Press the following keys:



3. and, at the same time, switch on the device while holding down both keys for a few seconds.
4. The display should indicate 'Service Mode'.

Adjustment without using the scintillator

WARNING Taking into account the treatments applied to the digital image, we would strongly recommend the use of the scintillator to adjust the unit.

1. From the process interface, select 'Maintenance' 'CALIBRATION' 'Control of the X-ray beam'

   THIS OPERATING MODE IS USED TO MAKE ADJUSTMENTS TO THE IMAGE ON THE SENSOR, WITHOUT USING THE SCINTILLATOR.

2. Press the exposure button to make an exposure (the exposure parameters should be 60 kV 2 mA).

3. Check that the beam is centered on the sensor. A lighter area should appear on the periphery of the image (refer to the drawing below).

4. If the adjustment is unsatisfactory, remove the front cover from the radiogenic unit.

5. Slightly untight the 2 screws securing the primary collimator and adjust its position in order to rectify the fault.

6. Make an exposure and check that the beam is centered on the sensor (refer to the drawing below).

7. Repeat the operation as often as necessary.

8. When the adjustment is satisfactory, tighten the screws and refit the covers.

Adjustment using the scintillator

1. From the process interface, select 'Maintenance' 'CALIBRATION' 'Tube Head Calibration'

This operating mode is used to make exposures without rotating the arm and without acquiring an image; the maximum exposure time is 16 seconds. However, the exposure may be interrupted at any time by releasing the exposure button. The load charts of the radiogenic unit are managed normally.

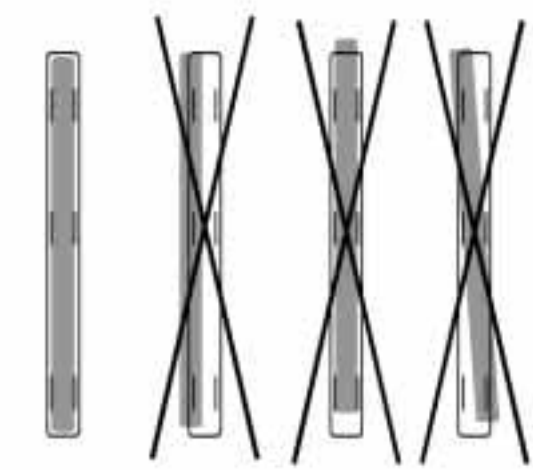
In the 'Parameters' window, select the radiological parameters required for correct illumination of the scintillator (75 kV, 10 mA for example).

1. Remove the cover from the digital sensor.

2. Place the scintillator in the secondary slot of the digital sensor (if necessary, use adhesive tape to hold it in position).

3. IT IS RECOMMENDED THAT THE WORK SHOULD BE PERFORMED IN THE DARK IN ORDER TO CLEARLY DISPLAY THE FIELD ON THE SCINTILLATOR.

4. Make an exposure and check that the X-ray field is within the markings on the scintillator.



5. If the adjustment is unsatisfactory, remove the front cover from the radiogenic unit.

6. Slightly untight the 2 screws securing the primary collimator and adjust its position in order to rectify the fault.

7. Make an exposure and check that the X-ray field is within the markings on the scintillator.

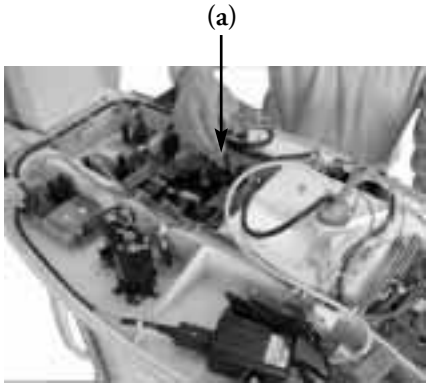
8. Repeat the operation as often as necessary.

9. When the adjustment is satisfactory, tighten the screws and refit the covers.

Aligning the beam

1. Place a metal rod instead of the biteblock rod on the pan chinrest.

2. Move the arm to the median position, so that the center line of the digital sensor, the metal rod and the center line of the radiogenic unit are in alignment. Immobilize the arm in this position, using the screw (a) located beneath the upper cover. This screw passes through the CJ653 board.

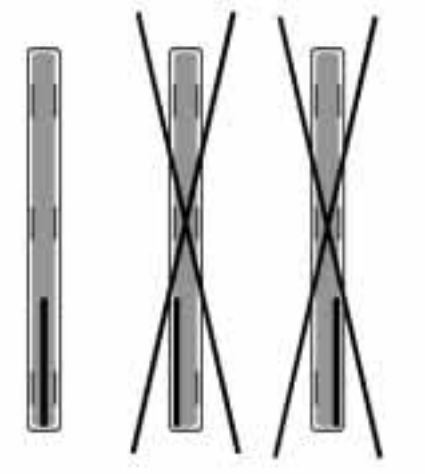


3. **To make adjustments using the scintillator, select 'Check Generator' mode.**

   To make adjustments without using the scintillator, select 'Check X-ray Beam' mode.

   See above.

   Make an exposure and check that the shadow of the metal rod is centered on the scintillator or on the image.



4. If the adjustment is unsatisfactory, remove the lower cover from the control panel.

5. Slightly untight the 2 screws (a) securing the chinrest assemblyand adjust its position in order to rectify the fault.

6. Make an exposure and check that the metal rod is centered.

7. Repeat the operation as often as necessary.

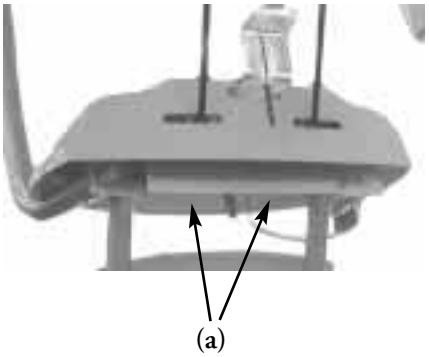
8. 8. When the adjustment is satisfactory, tighten the screws and refit the cover.

9. To exit from the 'Check Generator' or 'Check X-ray Beam' modes, select a type of image in the Program window.

10. **Do not forget to release the arm by removing the screw (a) passing through the CJ653 board.**

11. To exit from Service mode, switch off and restart TROPHYPAN.

NOTE The scintillator must be stored in a dry area which is not exposed to light.

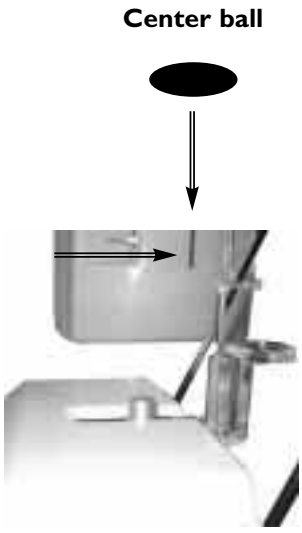


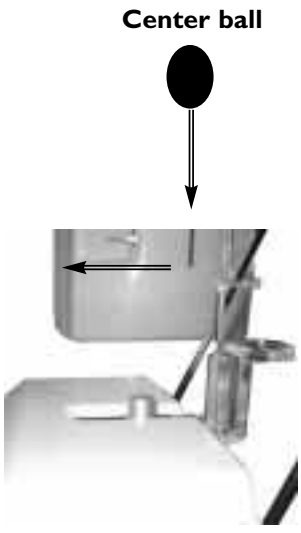
CHECKING AND ADJUSTING THE LAYER

WARNING The technician must comply with the standards currently in force while installing and using the radiology unit.
Whenever necessary, he must use a shield or wear a lead-lined apron.

WARNING The adjustments or operations described below are delicate and may adversely affect the operation of the device.
They must be carried out by an approved Trophy technician.

1. Remove the bite block and the rod.
2. Position the ball phantom film and check that the graduated scale on the chinrest is set to the '0' position.
3. Make a panoramic exposure at 60 kV 2 mA. The image should be symmetrical and the balls should be circular.
4. If the balls are not circular, move the graduated scale at millimeter intervals, in one direction or another, making an exposure each time, until the central ball is circular.
5. Mark the position of the scale at which the center ball is circular and remove the chinrest. Move the label ref. JP720 (affixed to the chinrest assembly) so that it meets this position.

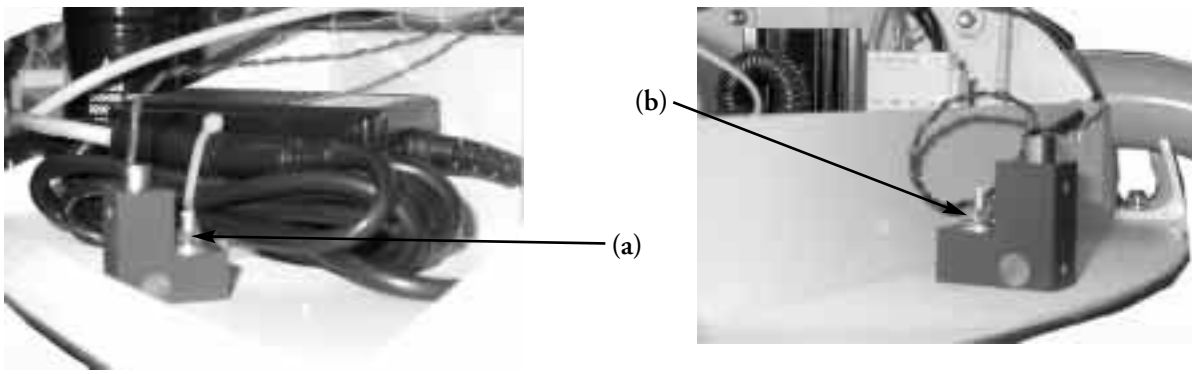


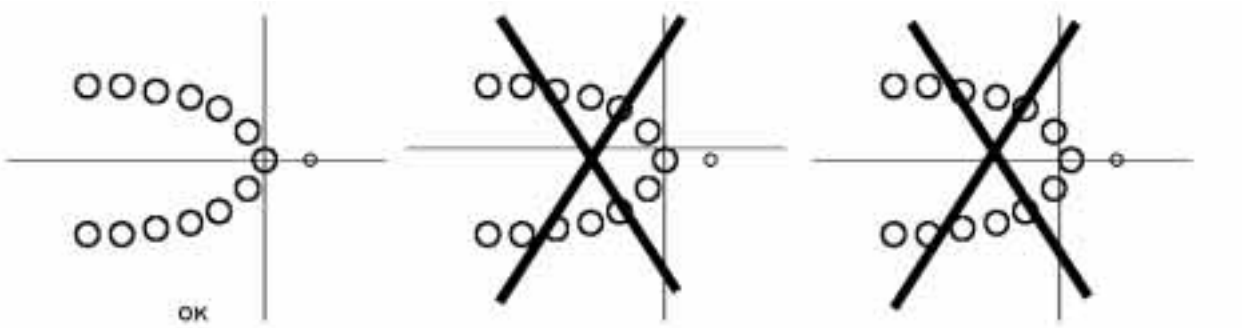


CHECKING AND ADJUSTING THE LASERS

The check and adjustment of the layer must be done previously.

1. Remove the bite block and the rod.
2. Position the ball phantom and check that the graduated scale on the chinrest is set to the '0' position.
3. Switch on the lasers.
4. Check that the sagittal, median and canine lasers intersect perpendicularly over the center ball.
5. If the beams are not correctly aligned, remove the top cover from the Panoramic unit in order to access to the laser adjustment mechanism.
6. Slightly untight the screws retaining the laser mounting (a) or (b), then adjust the laser so that the beam is correctly aligned on the center ball.
7. When the adjustment is correct, retighten the screw.
8. Check that the laser of the Frankfurt plane is perpendicular to the centerline of the digital sensor.
9. If the beam is not correctly aligned, remove the front cover from the radiogenic unit.
10. Slightly untight the screw retaining the laser (c) to be adjusted, then adjust the laser so that the beam is perpendicular to the vertical centerline of the digital sensor.
11. When the adjustment is correct, retighten the screw, and refits the covers.



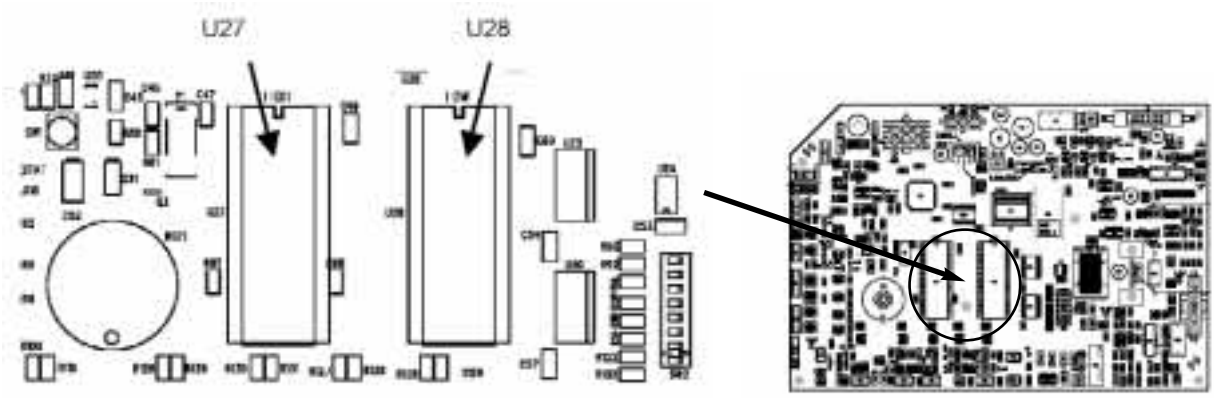


SOFTWARE UPGRADES

Panoramic software

In the event of an upgrade to the software installed in the Panoramic unit, it may be necessary to replace the EEPROM's on the CJ664 board.

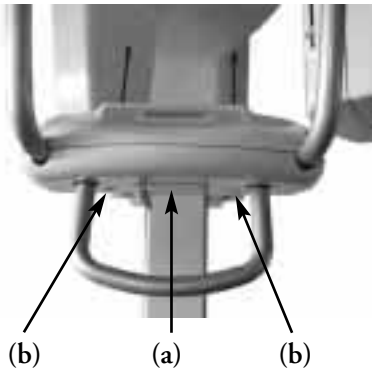
1. Switch off the device.
2. Remove the top cover.
3. Replace the EEPROM's, noting the position of insertion. Do not invert U27 and U28. Proceed with care as the components are fragile, and you might bend the pins if they are not aligned with the socket.



Control Panel software

In the event of an upgrade to the software installed in the Panoramic unit, it may be necessary to replace the memory circuit U1 on the CJ687 board.

1. Switch off the device.
2. Remove the knob (a) for adjusting the arms of the head clamp.
3. Remove the 2 screws (b) from the lower cover of the control panel. The cover remains suspended by the handle.
4. Replace the memory circuit, noting the position of insertion. Proceed with care as this component is fragile. (Please see above)



PC software

Driver for the Digipan PCI board in Windows 98, 2000 or XP:

1. Launch the Peripherals Manager (Start + Parameter + Configuration Panel + System)

2. In **Sound, Video and Games Controller,** double-click on **Digipan Trophy** then, in **Driver,** choose **Update Driver** (click on **Next**). Click on **Display List, Next,** then on **Floppy Disk supplied.** In **Search,** indicate the path X:\DigiPCI, **Next** and confirm the update by **Finish**. Reboot the computer and go to Step 4.

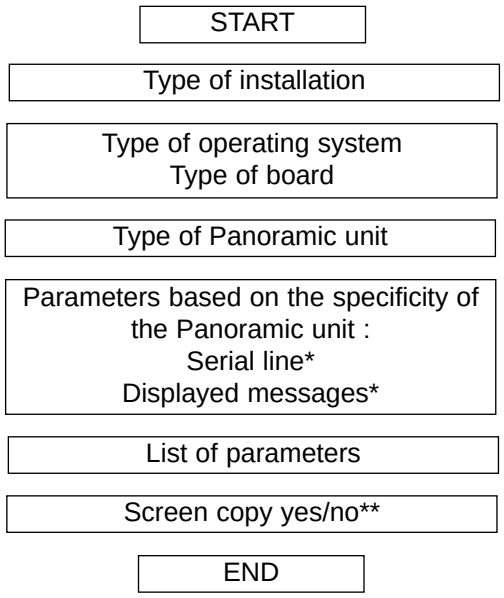
NOTE Step 2 must be followed by Step 4 in order to ensure correct installation in Windows 98, 2000 or XP..

3. Insert the Trophy Windows CD-ROM. When the CD-ROM menu appears (Autorun), click on the **Hardware Installation** icon and then click on **Digipan Installation.**

4. The window of the 'DigipanInstall' installation routine appears. Select the different options according to the hardware supplied and the operating system installed in the computer.

NOTE The configuration operation performed with 'DigipanInstall´must be repeated if the Digipan cassette is installed in a Panoramic unit which has different characteristics from those declared during the initial installation.

The installation follows the sequence described below. In the event of an error, it is possible to return to the previous stage. The installation may be canceled at any time and resumed at a later stage.



*Some Panoramic units do not permit the transmission of exposure parameters or the name of the program selected via a serial link to the computer. However, it is possible to indicate this information manually, by using a special dialog box. The program names can be easily customized by replacing the default texts proposed during the installation. The names can be changed in the 'Configuration Dialog' window.

** When all the parameters have been confirmed, the system asks if the mask of the Digipan cassette is to be installed. In the case of an initial installation or following the replacement of one cassette by another cassette, tick the box to copy the mask. Then insert the floppy disk containing the mask (supplied with the Digipan kit) into the floppy disk drive and click on 'Next'. In other cases, it is not necessary to copy the mask (unless there is any likelihood of accidental loss of the system data). [pano.msk file]

Click on '**Finish**' to complete the installation of the drivers.

5. Reboot the computer to store the parameters before using or configuring the digital sensor. If necessary, install the Trophy Windows software (see below).

6. For Windows XP only with a version 4.x of Trophy Windows, the utility must be launched from registry database; refer to the Autorun instructions on the Trophy Windows CD.

Trophy Windows

WARNING
TROPHYPAN is only compatible with Trophy Windows version 5.0 or higher.

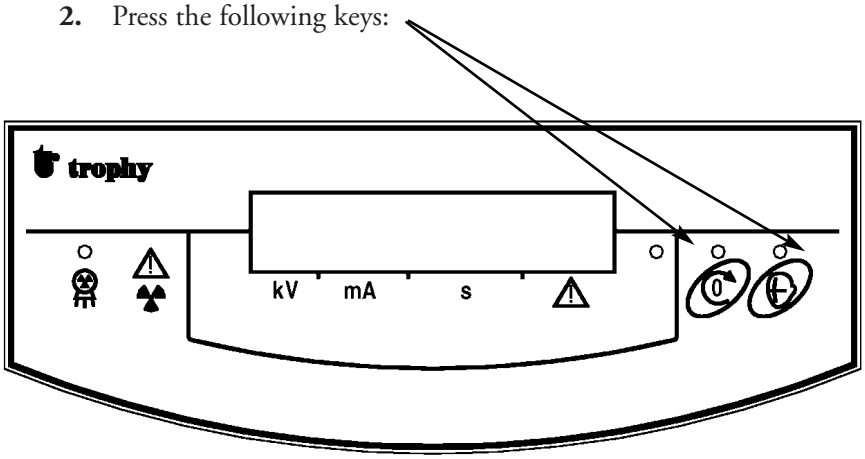
To install the Trophy Windows software, insert the Trophy Windows CD-ROM into the CD drive and wait until the main menu appears. If it does not appear, launch it manually (AutorunTW.exe on the CD-ROM). Then click on the 'Install Trophy Windows Imaging Software' icon and follow the instructions. If a version of Trophy Windows already exists, it can be upgraded using the same procedure without affecting the database.

The installation of TROPHYPAN is now complete. For more information, refer to the TROPHYPAN and Trophy Windows user manuals. A detailed online Help function is also available at any time from Trophy Windows.

DESCRIPTION OF THE SERVICE MENU

Accessing 'Service' mode

1. Shut down TROPHYPAN.
2. Press the following keys:



3. and, at the same time, switch on the device while holding down both keys for a few seconds.
4. The display should indicate 'Service Mode'.

‘About TROPHYPAN’ menu

Among other items of information, this menu is used to display the software version numbers, the manufacturing parameters, the calibration parameters and the user preferences (this menu is accessible in the same way in Trophy Windows).

1. From the process interface, select

? ‘About TROPHYPAN’

‘Details’ menu

This menu is used to view the calibration parameters.

1. From the process interface, select

? ‘Details’

‘Log’ menu

This menu is used to view the error log and for access to ‘Service’ mode.

1. From the process interface, select

? ‘Log‘

‘General Information’ menu

This menu is used to view the usage rate of the radiogenic unit.

1. From the process interface, select

‘Maintenance’
‘General‘

2. A window indicates the exposure counter and the load on the tube.

‘Communication’ menu

This menu is used to view information relating to the RS232 link between the PC and TROPHYPAN.

1. From the process interface, select

‘Maintenance’
‘Communication’

2. The serial port can be modified in Trophy Windows.

The transfer rate can be modified in the registry database (by a qualified technician).

WARNING The transfer rate must be identical to the rate selected on the TROPHYPAN CJ664 board. Refer to the paragraph ‘Position of the DIP switches on the CJ664‘ on page 70.

3. If the number of incorrect requests is high and if the failure rate exceeds 10 %, it may be necessary to check the connection configuration, the wiring and the environment.

‘Preferences’ menu

This menu is used to select or modify the User Preferences.

1. From the process interface, select ‘Maintenance’
‘Preference’

2. ‘Neutral position of the arm‘
It is preferable to choose ‘Right’ if the model installed is designed for patient access from the right-hand side
and ‘Left’ if the model installed is designed for patient access from the left-hand side.
Otherwise, before each image is exposed, the device rotates without emitting X-rays.

3. ‘Compensation for the shadow generated by the vertebrae‘
During the exposure, the generator increases the value of the voltage of the X-ray tube, over a certain width, during passage through the spinal column.
These values are set in the factory and they should not be modified unless requested by the medical practitioner.

For each of the body types and age categories, the kV parameter (expressed in kV) represents the number of kV added to the initial kV setting, in order to compensate for the passage of X-rays through the cervical area:
The value should be between 0 and 10 kV

For each of the body types and age categories, the ‘Percentage’ parameter (expressed in %) represents a coefficient of adjustment of the percentage compensation for the vertebrae. All the ‘Percentages’ entered in these fields use as reference the width of the cervical area of a ‘Medium’ ‘Adult’ skull, preset at the factory:
The value should be between 80 and 120 %.

‘Manufacturing parameters’ menu

The following fields have been completed at the factory. They only need to be checked by the technician.

1. From the process interface, select ‘Maintenance’
‘Manufacturing parameters‘

2. ‘Serial number‘
This parameter should correspond to the serial number marked on the device.
It must not be modified by the technician.

3. ‘Voltage rating‘
This parameter should correspond to the installed version of the Panoramic unit. It must not be modified by the technician.
If the installed version of the Panoramic unit does not correspond to mains voltage in the room, the device will not function correctly. Refer to the paragraph ‘Required Electrical Specifications’.

4. 'Mains frequency'
This parameter should correspond to the installed version of the Panoramic unit. It must not be modified by the technician.
If the installed version of the Panoramic unit does not correspond to mains frequency in the room, the device will not function correctly. Refer to the paragraph 'Required Electrical Specifications'.

5. 'Tube reference'
This parameter should correspond to the type of tube marked on the label affixed to the radiogenic unit. It must not be modified by the technician.
If the version of the tube does not correspond to the version installed in the radiogenic unit, the device will not function correctly.

6. 'Type of Panoramic unit'
If the installed Panoramic unit is the 'left entry' type, the selected parameter should be 'clockwise'.
If the installed Panoramic unit is the 'right entry' type, the selected parameter should be 'Unidirectional, counter-clockwise direction'.
Other types are not available.
If the selected parameter does not correspond to the installed type of Panoramic unit, the images will be unsatisfactory (inverted and blurred image).

7. 'Type of cephalostat'
'Without Cephalostat' mode must be selected.
Other types are not available.

‘kV Calibration’ menu

WARNING The technician must comply with the standards currently in force while installing and using the radiology unit.
Whenever necessary, he must use a shield or wear a lead-lined apron.

WARNING The adjustments or operations described below are delicate and may adversely affect the operation of the device.
They must be carried out by an approved Trophy technician.

This menu is used to calibrate the system for measuring and controlling the kV values of the radiogenic unit.
It can be used in the event of replacement of the radiogenic unit or the CJ664 board.

HOWEVER, IN THE MAJORITY OF CASES, THE ADJUSTMENTS MADE AT THE FACTORY ARE SUFFICIENT TO ACHIEVE THE DESIRED ACCURACY. THIS MENU MUST ONLY BE USED BY A QUALIFIED TECHNICIAN.

This operation requires the use of a kV peak meter.

1. Remove the cover from the digital sensor and place the kV peak meter in the X-ray field. Use the scintillator or the ‘Check X-ray Beam‘ menu to confirm that it is actually in the field.
AS THE MAJORITY OF KV PEAK METERS ARE HIGHLY SENSITIVE TO FILTRATION AND THE CENTERING OF THE BEAM, IT IS RECOMMENDED THAT THE PRIMARY COLLIMATOR SHOULD BE REMOVED BEFORE PERFORMING THIS MEASUREMENT.
If this is not the case, remove the front cover from the radiogenic unit and withdraw the primary collimator.

2. From the process interface, select ‘Maintenance’ ‘CALIBRATION’ ‘kV Calibration’

3. A window is displayed, indicating the correction factors applied to the command and the kV measurement.
Click on ‘Start’ to begin the calibration process.

4. A new window is displayed: ‘kV Calibration - Step 1’.
This step is used to calibrate the 70 kV position..
Make an exposure, note the displayed value and enter this value in the ‘kV Peak Meter’ field (this value must not vary by more than ± 3 kV from the set value. Otherwise, make another exposure or check the kV peak meter).
Click on Next.

5. A new window is displayed: ‘kV Calibration - Step 2’.
This step is used to calibrate the 80 kV position.
Make an exposure, note the displayed value and enter this value in the ‘kV Peak Meter’ field (this value must not vary by more than ± 3 kV from the set value. Otherwise, make another exposure or check the kV peak meter).
Click on Next.

6. The window indicates the new correction factors applied to the command and the kV measurement.
The calibration process is complete. Click on Save.

7. If necessary, replace the collimator. (Refer to the Adjustement of the collimator section on page 76.
If an error message is displayed during the calibration process, refer to the paragraph ‘Error Messages‘.

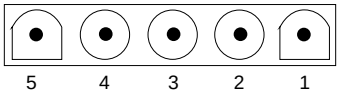
‘mA Calibration’ menu

WARNING The technician must comply with the standards currently in force while installing and using the radiology unit.
Whenever necessary, he must use a shield or wear a lead-lined apron. The device must be switched off before the covers are removed.
Any work which has to be carried out on the device while it is switched on and while the covers are removed must be undertaken by an approved Trophy technician.
Unqualified persons must not approach the device.

WARNING The adjustments or operations described below are delicate and may adversely affect the operation of the device. They must be carried out by an approved Trophy technician.

This menu is used to calibrate the system for measuring and controlling the mA values of the radiogenic unit.
It can be used in the event of replacement of the radiogenic unit or the CJ664 board.
HOWEVER, IN THE MAJORITY OF CASES, THE ADJUSTMENTS MADE AT THE FACTORY ARE SUFFICIENT TO ACHIEVE THE DESIRED ACCURACY.
THIS MENU MUST ONLY BE USED BY A QUALIFIED TECHNICIAN.
This operation requires the use of a multimeter (ohmmeter and DC voltmeter).

1. Switch off the device.
Remove the top cover.



2. Disconnect J12 from the CJ664 board and measure the resistance between terminals 1 and 4 on the connector of connecting cable 16. The value should be between 247 and 253 W.
Connect J12 to its socket and place the DC voltmeter between the ground terminal of the device and test point PT22 (RET-MA) on the CJ664 board.
THE MEASURED VALUE SHOULD BE 4 mA PER VOLT.
Switch on the device in ‘Service’ mode.

3. From the process interface, select ‘Maintenance’
‘CALIBRATION’
‘mA Calibration’

4. A window is displayed, indicating the correction cfactors applied to the command and the mA measurement.
Click on ‘Start’ to begin the calibration process.

5. A new window is displayed: ‘mA Calibration - Step 1’.
This step is used to calibrate the 4 mA position.
Make an exposure, note the displayed voltage, multiply this value by 4, and enter this value in the ‘Milliammeter’ field (this value must not vary by more than ± 1 mA from the set value. Otherwise, make another exposure or check the accuracy of your voltmeter).
Click on Next.

6. A new window is displayed: ‘mA Calibration - Step 2’.
This step is used to calibrate the 12 mA position.
Make an exposure, note the displayed voltage, multiply this value by 4, and enter this value in the ‘Milliammeter’ field (this value must not vary by more than ± 2 mA from the set value. Otherwise, make another exposure or check the accuracy of your voltmeter).
Click on Next.

7. The window indicates the new correction factors applied to the command and the mA measurement.
   The calibration process is complete. Click on Save.
   If an error message is displayed during the calibration process, refer to the paragraph 'Error Messages'.

'Heating Voltage Calibration' menu

WARNING The technician must comply with the standards currently in force while installing and using the radiology unit.
Whenever necessary, he must use a shield or wear a lead-lined apron.

WARNING The adjustments or operations described below are delicate and may adversely affect the operation of the device. They must be carried out by an approved Trophy technician.

This menu is used to calibrate the preheating voltage of the radiogenic unit.
It can be used in the event of replacement of the radiogenic unit or the CJ664 board.

THE MA VALUES MUST BE CALIBRATED BEFORE THIS OPERATION IS PERFORMED.

No measuring instrument is required.

1. From the process interface, select 'Maintenance' 'CALIBRATION' 'Heating Voltage Calibration'

2. A window is displayed for calibrating the heater corresponding to each kV value.
   To do this, press the exposure button until the audible signal ceases.
   The microprocessor automatically measures the heater value for the first kV value, then moves on to the next value.

3. Repeat the operation for the second value and so on for each kV value.

4. When the last kV value has been calibrated, click on 'Save'.

   If an error message is displayed during the calibration process, refer to the paragraph 'Error Messages'.

‘Arm Calibration’ menu

This menu is used to calibrate the lengths of movement covered by the arm.
It may be used in the event of replacement of the limit switches or the motor, for example.

WARNING During this operation, no person and no object must be located within the arc of movement of the arm.

No measuring instrument is required.

1. From the process interface, select ‘Maintenance’ ‘CALIBRATION’ ‘Arm Calibration’

2. A window is displayed, containing the preceding calibration parameters.
Click on ‘Calibration’ to begin the operation. The arm moves backward and forward several times.
Wait for the audible signal which indicates the end of the calibration operation, then click on ‘Save’.
If an error message is displayed during the calibration process, refer to the paragraph ‘Error Messages‘.

‘Tube Head Calibration’ menu

This menu is used to emit X-rays without movements and without the acquisition of images, in order to take measurements or to perform tests.
The load charts of the radiogenic unit are managed normally.
The emission of X-rays is interrupted if the operator releases the exposure button.
The exposure time is limited to 16 seconds.
The operator has access to the exposure parameters (kV and mA).

WARNING The technician must comply with the standards currently in force while installing and using the radiology unit.
Whenever necessary, he must use a shield or wear a lead-lined apron.

1. From the process interface, select ‘Maintenance’ ‘CALIBRATION’ ‘Tube head Calibration‘

2. Press the exposure button to make an exposure.

3. Press the exposure button again to make another exposure or select a type of image in the Program menu in order to exit from this mode.

‘Control of the X-ray Beam’ menu

This menu is used to expose the sensor, without electronic scanning, so as to check whether the beam is correctly centered on the CCD.

WARNING Taking into account the treatments applied to the digital image, we would strongly recommend the use of the scintillator to adjust the unit.

The load charts of the radiogenic unit are managed normally.
The emission of X-rays is interrupted if the operator releases the exposure button.
The operator has access to the exposure parameters (kV and mA). However, it is recommended that this operation should be performed at 60 kV, 2 mA and to select ‘High contrast’ in the Trophy Windows ‘Options’ menu, followed by ‘Preferences’ and ‘Panoramic’.

WARNING The technician must comply with the standards currently in force while installing and using the radiology unit.
Whenever necessary, he must use a shield or wear a lead-lined apron.

1. From the process interface, select ‘Maintenance’ ‘CALIBRATION’ ‘Control of the X-ray Beam‘
2. Pres the exposure button to make an exposure.
3. Check that the beam is centered on the sensor. A lighter area should appear on the periphery of the image.
   If this is not the case, refer to the paragraph ‘Adjusting the collimator‘ on page 75.
   Select a type of image in the Program menu in order to exit from this mode.

‘Dose Measurement on Incisor’ menu

This menu is used to expose the sensor during the period required by the digital sensor to perform a single scan.
It is therefore this period which takes any point on a film in order to scan the width of the slot.

The load charts of the radiogenic unit are managed normally and the vertebrae compensation function is active.

The emission of X-rays is interrupted if the operator releases the exposure button.
The operator has access to the exposure parameters (kV and mA).

WARNING The technician must comply with the standards currently in force while installing and using the radiology unit.
Whenever necessary, he must use a shield or wear a lead-lined apron.

1. From the process interface, select ‘Maintenance’ ‘CALIBRATION’ ‘Dose Measurement on Incisor‘
2. Place the arm in the starting position.
3. Press the exposure button to make an exposure.
   Select a type of image in the Program menu in order to exit from this mode.

‘Reset of the Calibration Parameters’ menu

This menu is used to return to the factory settings for the kV, mA, heater voltage and stand calibration parameters.

In the event of loss of parameters and inability to perform calibration operations, for example.

1. From the process interface, select ‘Maintenance’ ‘CALIBRATION’ ‘Reset of the Calibration Parameters’

2. Click on ‘Yes’.

‘Reset of total Parameters’ menu

This menu is used to return to the factory settings for the manufacturing, kV, mA, heater voltage and stand calibration parameters and the user preferences.

1. From the process interface, select ‘Maintenance’ ‘CALIBRATION’ ‘Reset of total Parameters‘

2. Click on ‘Yes’.

‘Save/Restore’ menu

The information contained in the various maintenance menus are stored in TROPHYPAN. They can be saved in the PC so that they can be sent to TROPHYPAN, in the event of replacement of the ‘microprocessor board – CJ664‘ for example.

1. From the process interface, select ‘Maintenance’ ‘Save/Restore’

2. Click on ‘Save‘ to store the parameters of the ‘Maintenance’ menu in the PC.

13. Click on ‘Restore‘ to restore the parameters of the ‘Maintenance’ menu in TROPHYPAN.

PREVENTIVE MAINTENANCE

We recommend that a general inspection of the device should be carried out every year by an approved Trophy technician. The inspection should cover the following points:

- Check the mechanical installation
- Check the points of attachment to the floor and wall
- Check the degree of legibility of the labels
- Clean the rotation track
- Damage to cables, covers, oil leaks, etc.
- Check and adjust the layer.
- Check and adjust the lasers.
- Stand calibration

Those parts of the device which do not come into contact with the patient can be cleaned with a soft cloth soaked in soapy water.

LIST OF SPARE PARTS

Unless otherwise indicated, each code corresponds to a spare part.

Column sub-list

N°	Part #	Part Description
	HR 332	On/off power switch fixing cover
	LS 133	On/off power switch 20A 250 VAC
	CP581	Electric linear actuator
	HY 271	Protection cover for electrical column wiring box
	HY 265	Sliding carriage plastic cover
	HR 344	Sliding carriage metallic rear cover
	HY 273	Top column cover
	HM587	Wall mounted swivel joint
	HM588	Swivel joint attachment to column
	LX018	Upper/lower limit switch
	JH018	Nylon cable ties

Column cables

N°	Part #	Part Description
	CP 005	RS 422 Pan to PCI Board cable
10	CP 883	RS 232 Pan to PC port COM cable
12	CP578	CJ664 board to the terminal box cable (handswitch)
23	CP577	CJ653 board to the terminal box cable (Safety light)
29	CP902	ON/OFF switch to filter cable
30	CP579	ON/OFF switch to the terminal box cable (power supply)
36	CP576	CJ699 board to the electric actuator
37	CP571	CJ699 board to the limit switches
	CP212	Mains cable

Head assembly sub-list

N°	Part #	Part Description
	JZ 024	AC/DC Panoramic power supply board
	JZ016	Digital sensor power supply
	CJ653-230V	Inverter board – 230 Volts
	CJ653-110V	Inverter board – 110 Volts
	CJ664	Microprocessor Board
	CJ699-230v	Motor board - 230 Volts
	CJ699-110v	Motor board - 110 Volts
	CJ 691	Laser board
	CJ777	Filter board
	LF439	Capacitor 2200µF – 250 V
	LF440	Filter
	JL 068	Laser beam adjusting positioner
	LP 648	Laser
	LS134	Arm movement Switch
	IS206	CJ 664 board Battery ***Warning: Refer to chapter "replacement of the battery" in the service manual"***
	LP621	CJ 664 board Battery ***Warning: Refer to chapter "replacement of the battery" in the service manual"***
	HT235	Rotation track
	HY 277	Head assembly top plastic cover
	HY279	Finishing front cover (for head assembly top plastic cover)

Head assembly cables

N°	Part #	Part Description
1	CP871	"CJ664 board to CJ687 board" cable
2	CP872	"CJ664 board to CJ691 board" cable
5	CP875	"CJ691 board to sagittal median laser" cable
6	CP876	"CJ691 board to Frankfurt laser" cable
7	CP877	"CJ664 board to CJ699 board" cable
8	CP878	"CJ664 board to arm movement switch" cable
9	CP879	"CJ664 board to optical coder" cable
13	CP886	"CJ664 board to CJ653 board" cable
14	CP887	"CJ664 board to Panoramic power supply board" cable
15	CP888	"CJ 664 board to CJ 653 – 12 VRL board" cable
16	CP889	"CJ664 board to tubehead assembly" cable
17	CP890	"CJ 653 board to CJ699 board" cable
18	CP891	"CJ699 board to digital sensor power supply" cable
19	CP892	"CJ699 board to asynchronous motor" cable
24	CP897	"CJ653 board to tubehead assembly" cable
25	CP898	"CJ653 board to Capacitor 2200 µF – 250 V" cable
26	CP899	"CJ653 board to Panoramic power supply board" cable
27	CP900	"CJ653 board to CJ777 board" cable
28	CP901	"CJ777 board to Filter" cable
32	CP572	"CJ699 board to the left down movement pushbutton" cable
33	CP573	"CJ699 board to the left up movement pushbutton" cable
34	CP574	"CJ699 board to the right down movement pushbutton" cable
35	CP575	"CJ699 board to the right up movement pushbutton " cable
	CP880	Digital sensor link cable

Rotation arm sub-list

N°	Part #	Part Description
	LZ046	Asynchronous Reduction motor-230V 50 Hz
	LZ047	Asynchronous Reduction motor-230V 60 Hz
	LZ048	Asynchronous Reduction motor-110V 60 Hz
	DB329	Pulley brake shoe
	JM025	Spring for asynchronous motor
	FC070	Nylon support d18x8 for moteur asynchronous motor
	FC070	Nylon support d14x9 for moteur asynchronous motor
	DT101	Pulley for asynchronous motor
	IM 107	Coding wheel for optical coder
	IM 108	Optical coder

Tubehead assembly sub-list

N°	Part #	Part Description
	CU 227	High frequency generator
	HN455	Leaded support for primary collimator
	TB114	Collimation washer for generator
	TB118	Primary collimator for digital panoramic
	MR087	Generator connector
	JL 067	Laser beam adjusting positioner
	LP 648	Laser
	HY283	Generator front plastic cover
	HY282	Generator rear plastic cover
	JE 071	Frankfurt laser adjusting knob

Digital panoramic sensor sub-list

N°	Part #	Part Description
	CI 686	Digital panoramic sensor. **Warning:** with patient entry on the right
	CI 686L	Digital panoramic sensor. **Warning:** with patient entry on the left
	HY 284	Arm and digital sensor assembly plastic cover
	JP723	"Digital" logo for digital sensor assembly plastic cover

Patient handles and chin rest assembly sub-list

N°	Part #	Part Description
	HT 178	Set of right and left head clamps
	JR265	Chin rest for panoramic imaging
	FC 020	Bite block holder
	HY 048	Bite block
	HT 182	Bite block for edentulous
	JR263	Chin rest for sinus imaging
	JR264	Nose rest for TMJ imaging
	BD103	Protection sleeves for bite block
	JP720	Reference sticker for chin rest
	JE 072	Adjusting knob for chin rest
	JE071	Adjusting knob for head clamps
	HY 281	Chin rest assembly bottom plastic cover
	HY 280	Chin rest assembly top plastic cover
	LS 013	Up/down movement pushbuttons
	CJ 687	Chin rest assembly display board
	JR262	Chin rest front panel board
	CG313	Head clamp assembly (to be ordered with JP720 sticker)

Others

N°	Part #	Part Description
	HY 173	Handswitch holder
	LV 098	Handswitch
	CG329	Extension kit for handswitch connection
	CP906	Extension cable for handswitch
	OT 001	Scintillating tool for testing
	OT 011	Bid phantom for testing
	CJ648	PCI board for Digital panoramic sensor
	HR 345	Base plate

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trophy

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SM 193

TROPHYPAN : EXTRAORAL DIGITAL X-RAYS SYSTEM

Service guide

trophy
A Kodak Company

Code	Message	Action
E 61		Acknowledge the error and restart acquisition of the image. If the problem persists, call a qualified technician.

The CJ 664 board has detected a malfunction in the circuit, which provides communication with the cephalometric sensor.

Possible cause:	This may be a transient problem or cable # 46 is too close to the inverter.
Remarks:	
Identification of the default:	
Actions:	Switch off and on the unit. Or modify the cable position.

Possible cause:	Cable is defective.
Remarks:	
Identification of the default:	
Actions:	Check connecting cable # 46 between CJ664 (TROPHYPAN) and CJ697 (Cephalostat) boards (continuity, connections).

Possible cause:	The CJ664 board is defective.
Remarks:	In this case, the display of the control panel is flashing.
Identification of the default:	
Actions:	Replace the CJ664 board.

Possible cause:	The CJ 697 is defective.
Remarks:	
Identification of the default:	In this case, the display of the control panel is flashing. Disconnect cable # 46 of CJ697 → the display is synchronizing
Actions:	Replace the CJ697 board.

E 101 to E114	**J BUS Communication problem**	**Acknowledge the error and restart acquisition of the image. If the problem persists, call a qualified technician..**

Communication error between PC and TROPHYPAN.

Possible cause:	This may be a transient problem, because the PC is communicating with a modem.
Remarks:	
Identification of the default:	Check the rate of transmission errors in the TROPHYPAN technical menu.
Actions:	Slow down the speed of the communication port – PORT COM.

Possible cause:	The cable is defective or is exposed to interferences.
Remarks:	
Identification of the default:	Check the rate of transmission errors in the TROPHYPAN technical menu.
Actions:	Check the RS 232 connecting cable and the electrical installation in the premises.

Possible cause:	Faulty port COM communication.
Remarks:	
Identification of the default:	No communication.
Actions:	Check that the connection of the RS232 cable is matching the configured communication port in WINDOWS. Check that the communication speed is the same. Check the functioning of the serial communication port with the Microsoft tool : Hyperterminal

E 201	Problems with image reception	Acknowledge the error and restart acquisition of the image. If the problem persists, call a qualified technician.

Although X-rays are emitted, the image is not transmitted or is not complete.

Possible cause:	Low voltage power supply to the digital sensor is defective.
Remarks:	
Identification of the default:	No image transfer.
Actions:	Replace the power supply.

Possible cause:	Exposure parameters are too low (kV and/or mA).
Remarks:	
Identification of the default:	No image transfer.
Actions:	Use the appropriate parameters.

Possible cause:	Exposure parameters are too low (kV and/or mA).
Remarks:	
Identification of the default:	The acquired image is only representing one third of the complete image.
Actions:	Use the appropriate parameters.

Possible cause:	Faulty exposure of the digital panoramic sensor.
Remarks:	For TROPHYPAN C,
Identification of the default:	The panoramic collimator is not perfectly positioned. X-ray beam is not aligned on the digital panoramic sensor.
Actions:	Handle gently the collimator until it locks in the proper position.

Possible cause:	The CJ664 board is defective, no Clk cassette signal emitted.
Remarks:	
Identification of the default:	No image transfer.
Actions:	Replace the CJ664 board.

SOFTWARE MESSAGES

Warnings displayed when opening Trophy Windows

Code	Message	Action
	Unknown panoramic unit. Please re-install the driver	The driver has not been installed properly

Possible cause:	Error while installing.
Remarks:	
Identification of the default:	
Actions:	Re-install the driver.

	IOCTL error	The driver does not communicate with the board

Possible cause:	The CJ648 board is not properly connected in the PC slot.
Remarks:	
Identification of the default:	
Actions:	Check the installation of the CJ648 board. Re-install the driver in case of a TW version superior or equal to 6.04. If the TW version is inferior to v. 6.04, use the appropriate patch to solve the problem.

	Bad driver version	The driver has not been properly installed

Possible cause:	Error while installing.
Remarks:	Check that : - PANOPCI Rev0 corresponds to CJ648V3 - PANOPCI Rev1 corresponds to CJ648V5
Identification of the default:	
Actions:	Re-install the driver.

	Panoramic configuration error. Please re-install the driver.	**The driver has not been properly installed.**

Possible cause:	Error while installing.
Remarks:	
Identification of the default:	
Actions:	Re-install the driver.

	Memory allocation problem	

Possible cause:	Too many applications are opened.
Remarks:	
Identification of the default:	
Actions:	Close some applications or reboot PC.

	Mask file not found	**Mask file not installed**

Possible cause:	Error while installing..
Remarks:	
Identification of the default:	
Actions:	Re-install the driver while taking care to select « Copy the mask file » to install the mask file(s). Mask file(s) scan also directly been copied in the C:\WINDOWS\SYSTEM32 directory.

	The RS-422 serial link of the panoramic unit is not connected or the panoramic unit is turned off	The digital sensor is not connected (same as E201)

Possible cause:	Faulty connection.
Remarks:	
Identification of the default:	Check the connections between the PC and the unit. Check the connections of the digital sensor inside the unit.
Actions:	If a default is detected, the installation must be rendered compliant.

Possible cause:	The unit is switched off.
Remarks:	
Identification of the default:	
Actions:	Switch on the unit.

Possible cause:	The CJ648 PCI board, the power supply of the digital sensor or the digital sensor is defective.
Remarks:	
Identification of the default:	
Actions:	Replace the defective component.

	The RS-422 serial link with the cephalostat is not connected or the panoramic unit is turned off	The digital sensor is not connected

Possible cause:	Faulty connection.
Remarks:	
Identification of the default:	Check the connections between the PC and the unit. Check the connections of the digital sensor inside the unit.
Actions:	If a default is detected, the installation must be rendered compliant.

Possible cause:	The unit is switched off.
Remarks:	
Identification of the default:	
Actions:	Switch on the unit.

Possible cause:	The CJ648 PCI board, the power supply of the digital sensor or the digital sensor is defective.
Remarks:	
Identification of the default:	
Actions:	Replace the defective component.

Errors displayed during acquisition

Error 0	Memory allocation problem	

Possible cause:	Too many applications are opened.
Remarks:	
Identification of the default:	
Actions:	Close some applications or reboot PC.

Error 1	Cannot open serial link	

Possible cause:	Faulty communication port configuration.
Remarks:	
Identification of the default:	
Actions:	Connect the proper communication port.

Error 2	Error while using the serial link	(same as E114).

Possible cause:	Faulty connection.
Remarks:	
Identification of the default:	Check the connections between the PC and the unit. Check the cable # 10 inside the unit.
Actions:	If a default is detected, the installation must be rendered compliant.

Possible cause:	The unit is switched off.
Remarks:	
Identification of the default:	
Actions:	Switch on the unit.

Possible cause:	The CJ648 PCI board is defective.
Remarks:	
Identification of the default:	
Actions:	Replace the defective component. Calibrate the mA and heating values. Refer to “kV Calibration” and “mA calibration” menus in the TROPHYPAN Service Guide - page 88 and 89.

Error 6	The RS-422 serial link of the panoramic unit is not connected or the panoramic unit is turned off	The digital sensor is not detected

Possible cause:	Faulty connection.
Remarks:	
Identification of the default:	Check the connections between the PC and the unit. Check the cable # 10 inside the unit.
Actions:	If a default is detected, the installation must be rendered compliant.

Possible cause:	The unit is switched off.
Remarks:	
Identification of the default:	
Actions:	Switch on the unit.

Possible cause:	The CJ648 PCI board, the power supply of the digital sensor or the digital sensor is defective.
Remarks:	
Identification of the default:	
Actions:	Replace the defective component.

Error 7	The RS-422 serial link with the cephalostat is not connected or the panoramic unit is turned off	The digital sensor is not connected

Possible cause:	Faulty connection.
Remarks:	
Identification of the default:	Check the connections between the PC and the unit. Check the connection inside the unit.
Actions:	If a default is detected, the installation must be rendered compliant.

Possible cause:	The unit is switched off.
Remarks:	
Identification of the default:	
Actions:	Switch on the unit.

Possible cause:	The CJ648 PCI board, the power supply of the digital sensor or the digital sensor is defective.
Remarks:	
Identification of the default:	
Actions:	Replace the defective component.

Error 8	RS422 cable with the panoramic unit is not connected or the unit is switched off	

Possible cause:	Problem with the register data.
Remarks:	
Identification of the default:	Check the values of the registry (contact Trophy hotline).
Actions:	Restart the installation.

Error 10	The panoramic board failed to acquire an image	

Possible cause:	
Remarks:	
Identification of the default:	
Actions:	

Error 11 Error 16	DMA problem Fatal error. Exit the application.	

Possible cause:	Problem caused by PC.
Remarks:	
Identification of the default:	
Actions:	Close the program and reboot the PC.

Error 14	Mask file not found	

Possible cause:	Error while installing.
Remarks:	
Identification of the default:	
Actions:	Re-install the driver while taking care to select « Copy the mask file » to install the mask file(s). Mask file(s) scan also directly been copied in the C:\WINDOWS\SYSTEM32 directory.

Error 15		Error in image transfert

Possible cause:	Software error
Remarks:	
Identification of the default:	
Actions:	Acknowledge the error and close the program. Open again Trophy Windows to acquire an image.

Other faults

I 9		**Sensor temperature too high** **If the problem remains, contact your certified dealer**

The « Cooling ceph sensor » I9 information is always displayed.

Possible cause:	Defective temperature measurement.
Remarks:	
Identification of the default:	The DS23 red LED on the CJ697 board remains switched on. The cephalometric acquisition module slightly gives out heat.
Actions:	Replace the CJ697 board.

Possible cause:	The Pelletier/Cooling module is defective.
Remarks:	
Identification of the default:	The DS23 red LED on the CJ697 board remains switched on. The cephalometric acquisition module remains cool (even after one hour).
Actions:	Replace the acquisition module.

CJ 699

TROPHYPAN MOTOR BOARD II

2A	4357	AIC	02/04/03	MODIFICATIONS	O. NESME
1A	Proto	AIC	24/02/03	CREATION	O. NESME
IND	AVIS	DRAW	DATE	MODIFICATIONS	APPR.by

MADE: O.NESME
10/02/03

TROPHY RADIOLOGIE

FUNCTION:
STATIF-MOTOR-BOARD II

DRAWING Nr	CODE	Vers	REV	SHEET
900 699	SC 699	2	A	1/2

INVERTER BOARD
J1-4 PSW
J1-3 NSW
J1-2
J1-1 0VRL
XCF1 PLASTIC NOIR
P.FUSIBLE F1 315mA 230V
P.FUSIBLE F2 315mA 230V
XF5 (115V) 630mA
XF6 (115V) 630mA
XCF2 PLASTIC NOIR
115V
230V
115V
X1
X2
X3
X4
45076 T3
F5 RXE300
D3 100V/6A
24VM
C4 1UF 250V
0VM
BK_UP
1N4004 D5
K4 12V-5A
UP
0VRL
R11 100
R10 100
C3 1UF 250V
V
R9 V68ZA2
J5-1
J5-2
M
COLUMN MOTOR
K3 12V-5A
DOWN
D4 1N4004
0VRL
ALIM DIGIPAN
J2-4 PSW
J2-3 NSW
J2-2
J2-1 0VRL
XF7 250 mA (115V)
XF8 250 mA (115V)
XCF3 PLASTIC NOIR
125 mA F3 230V
P.FUSIBLE
125 mA F4 230V
P.FUSIBLE
XCF4 PLASTIC NOIR
+12VRL
2N2907 Q1
R5 1K 5%
R6 1K 5%
2RT/5A K1
D1 1N4004
ALIM CNT
J12-4 PSW
J12-3 NSW
J12-2
J12-1 0VRL
R1 1K 5%
R3 1K 5%
R2 1K 5%
R4 1K 5%
C1 100N 250V
C2 100N 250V
2N2907 Q2
R7 1K 5%
R8 1K 5%
2RT/5A K2
D2 1N4004
STATIF MOTOR
J3-5 PL
J3-4 N
J3-3 PR
J3-2
J3-1 0VRL
MOTOR-LEFT
MOTOR-RIGHT
UP BOARD
J4-6 +12VRL
J4-5
J4-4
J4-3
J4-2
J4-1 0VRL
SW UP/DOWN
J6-2 SW_UP
J6-1 COMP_UP
J7-2 SW_DN
J7-1 COMP_DN
SW UP/DOWN
J11-2 SW_UP
J11-1 COM_UP
J10-2 SW_DN
J10-1 COM_DN
SW UP/DOWN
J9-4 SW_UP
J9-3 COM_UP
J9-2 SW_DN
J9-1 COM_DN
SW TRAVEL
J8-5 NC
J8-4 COM_UP
J8-3 BK_UP
J8-2 COM_DN
J8-1 BK_DN
BK_UP
BK_DN
FIXATION CARTE
X5 X6 X7
0VRL
X8 WA313
FIXATION DU TRANSFORMATEUR
X9 X10 X11 X12 X13 X14 X15 X16 X17

FUNCTION:
SCHEMA DE PRINCIPE

TROPHY RADIOLOGIE

DRAWING Nr	CODE	Vers	REV	SHEET
900 699	SC 699	2	A	2/2

CJ 664

PANORAMIC MICRO BOARD

3B	4220	AIC	12/03/02	MODIFICATIONS	O.NESME
3A	4175	MPA	18/12/01	MODIFICATIONS	O.NESME
2A	4151	MPA	28/09/01	MODIFICATIONS	O.NESME
1A	3959	DER	10/10/00	CREATION	P.LAURENT
IND	AVIS	DRAW	DATE	MODIFICATIONS	APPR.by

MADE:P. LAURENT
10/10/00

TROPHY RADIOLOGIE

FUNCTION:
PANORAMIC MICRO BOARD

DRAWING Nr	CODE	Vers	REV	SHEET
900 664	SC 664	3	B	1/6

INVERTER BOARD

LASER

TROPHY RADIOLOGIE

FUNCTION:	DRAWING Nr	CODE	Vers	REV	SHEET
XXXXXXXX	900 664	SC 664	3	B	2/6

INVERTER BOARD

ARCING DETECT

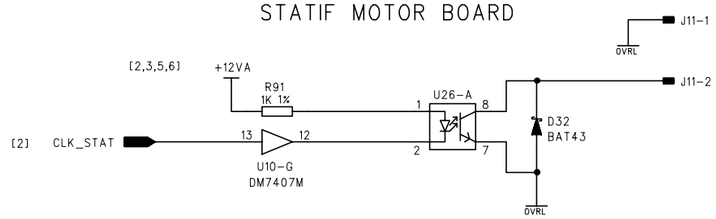
OUT A OUT B

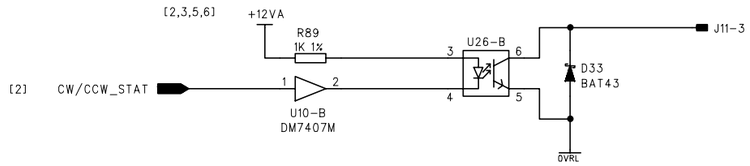
TUBE HEAD

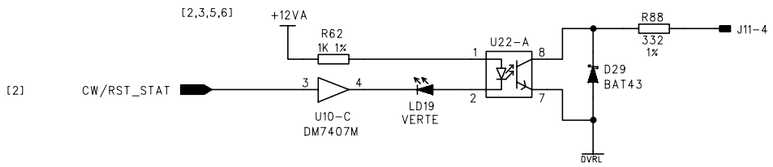
ALIM AC/DC

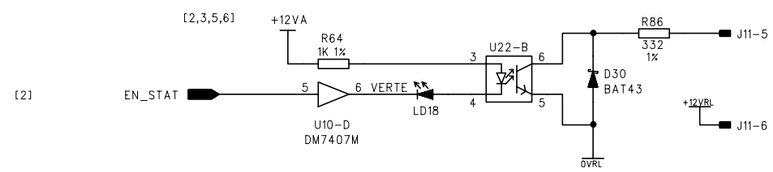
FUNCTION:	TROPHY RADIOLOGIE				
XXXXXXXX	DRAWING Nr	CODE	Vers	REV	SHEET
	900 664	SC 664	3	B	3/6

STATIF MOTOR BOARD

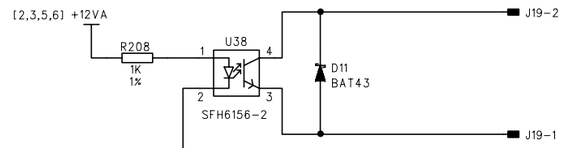




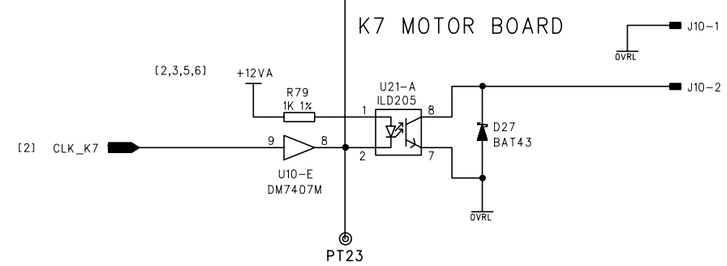


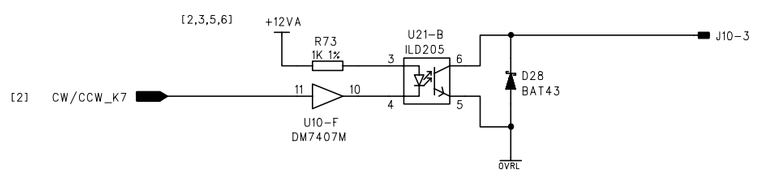


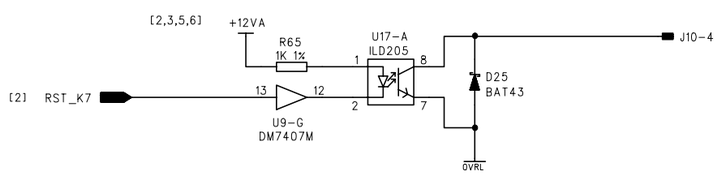
DIGIPAN BOARD

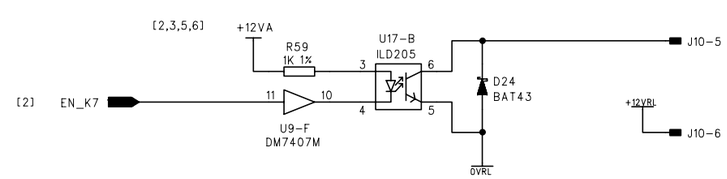


K7 MOTOR BOARD



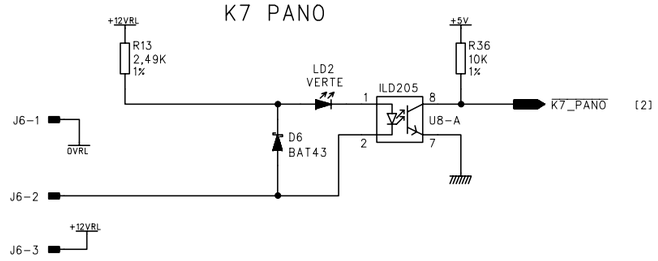




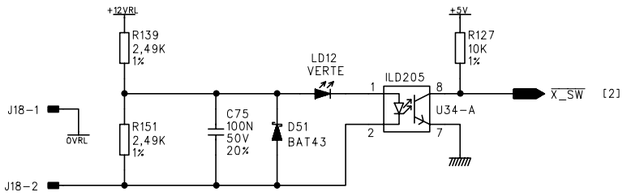


FUNCTION:	TROPHY RADIOLOGIE				
XXXXXXXX	DRAWING Nr	CODE	Vers	REV	SHEET
	900 664	SC 664	3	B	5/6

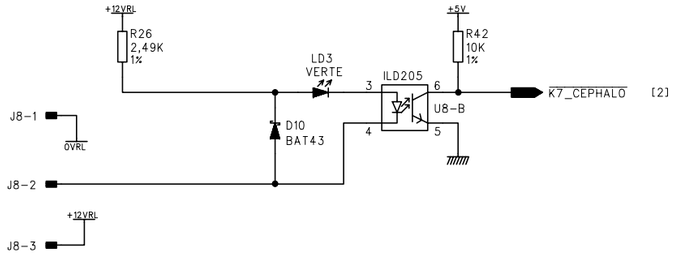
K7 PANO



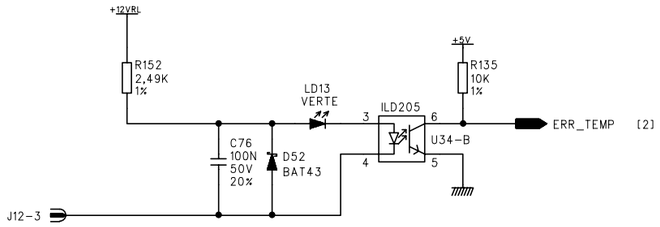
XRAY SWITCH



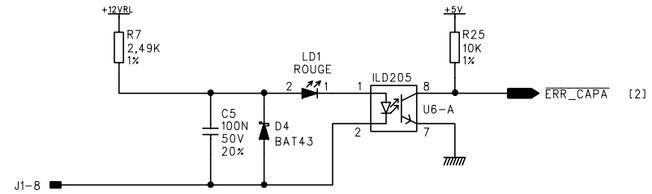
K7 CEPHALO



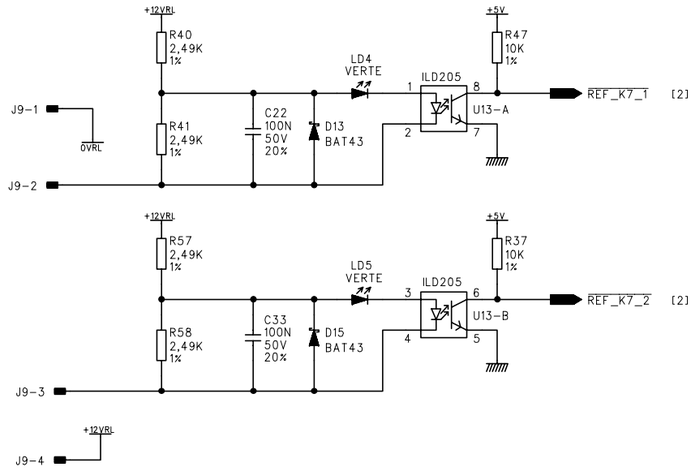
TEMPERATURE



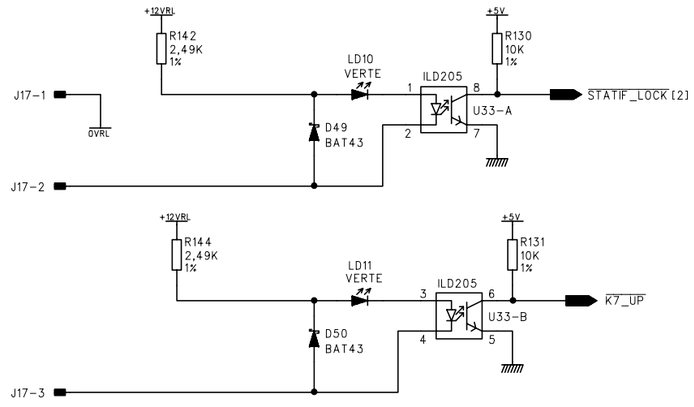
ERREUR CAPACITE



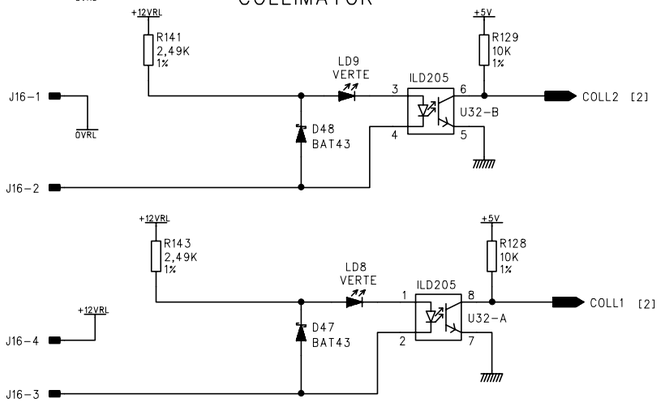
K7 REFERENCE



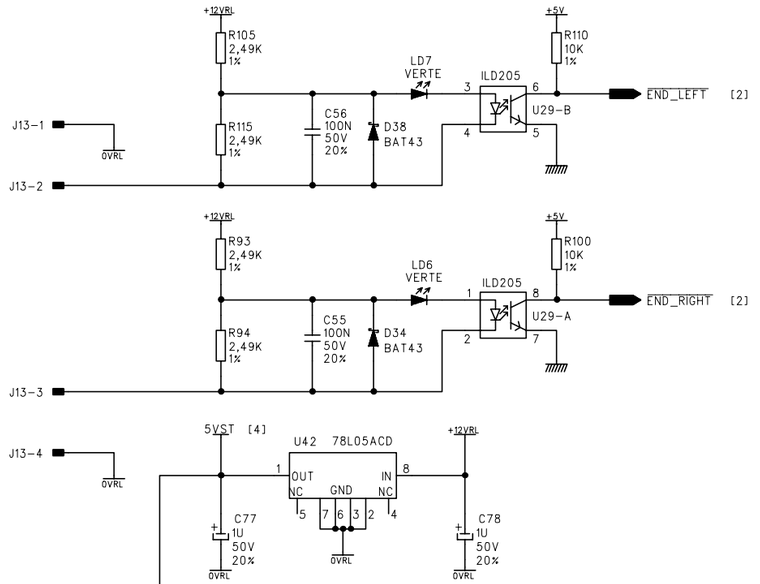
TUBE HEAD POSITION



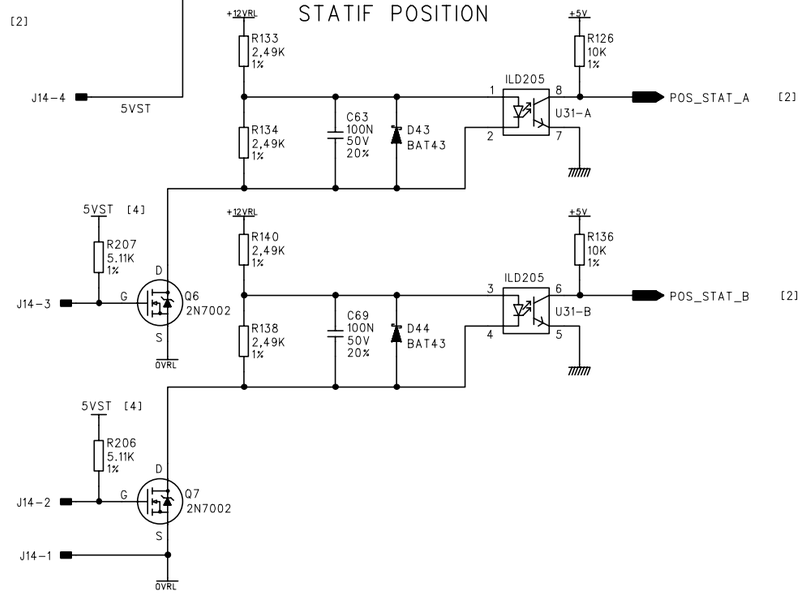
COLLIMATOR



STATIF MOTOR SWITCH

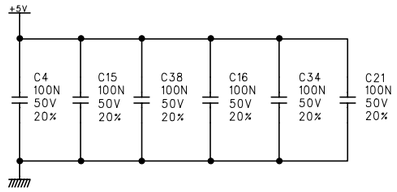


STATIF POSITION

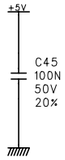


FUNCTION: XXXXXXXX	TROPHY RADIOLOGIE				
	DRAWING Nr	CODE	Vers	REV	SHEET
	900 664	SC 664	3	B	4/6

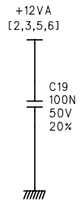
DECOUPLAGE DE U11



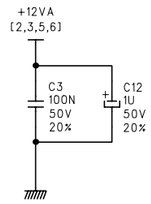
DECOUPLAGE DE U20



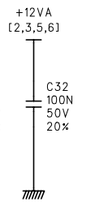
DECOUPLAGE DE U7



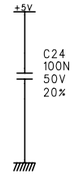
DECOUPLAGE DE U4



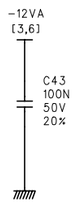
DECOUPLAGE DE U5



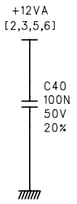
DECOUPLAGE DE U9



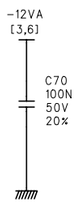
DECOUPLAGE DE U18



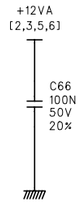
DECOUPLAGE DE U18



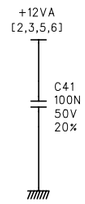
DECOUPLAGE DE U35



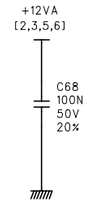
DECOUPLAGE DE U43



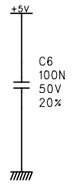
DECOUPLAGE DE U19



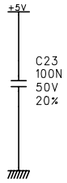
DECOUPLAGE DE U36



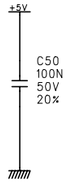
DECOUPLAGE DE U12



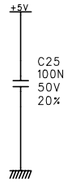
DECOUPLAGE DE U14



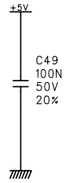
DECOUPLAGE DE U28



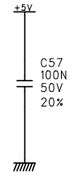
DECOUPLAGE DE U15



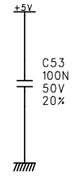
DECOUPLAGE DE U27



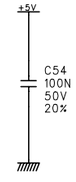
DECOUPLAGE DE U30



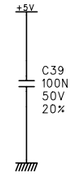
DECOUPLAGE DE U24



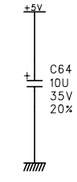
DECOUPLAGE DE U23



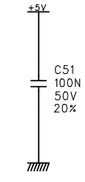
DECOUPLAGE DE U19B



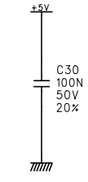
DECOUPLAGE DE U39



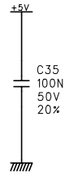
DECOUPLAGE DE U25

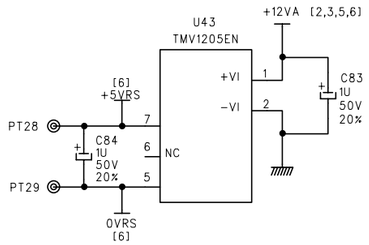


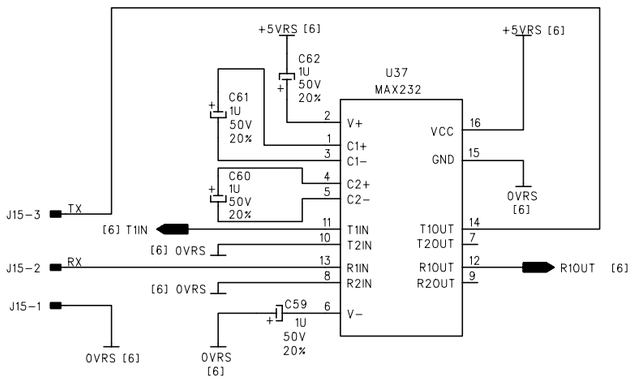
DECOUPLAGE DE U10

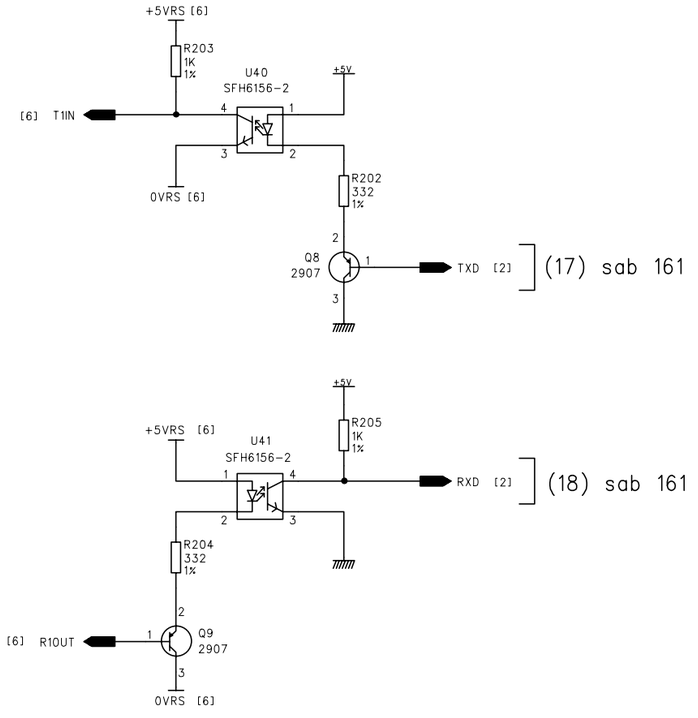


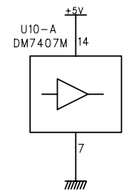
DECOUPLAGE DE U16

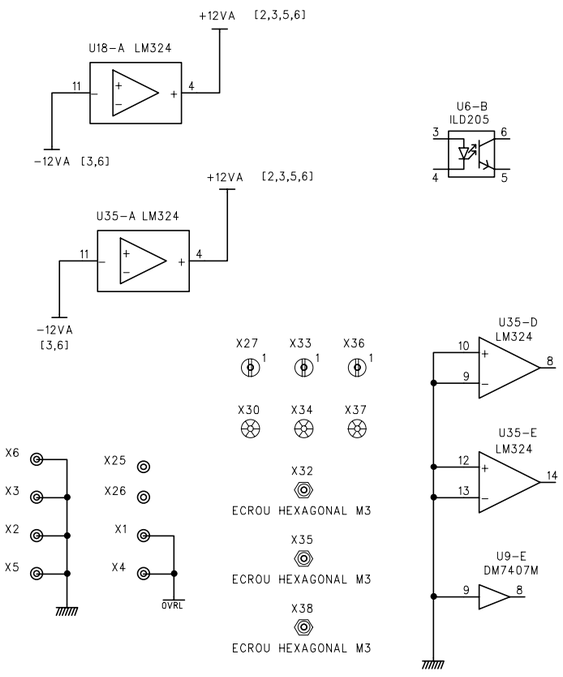










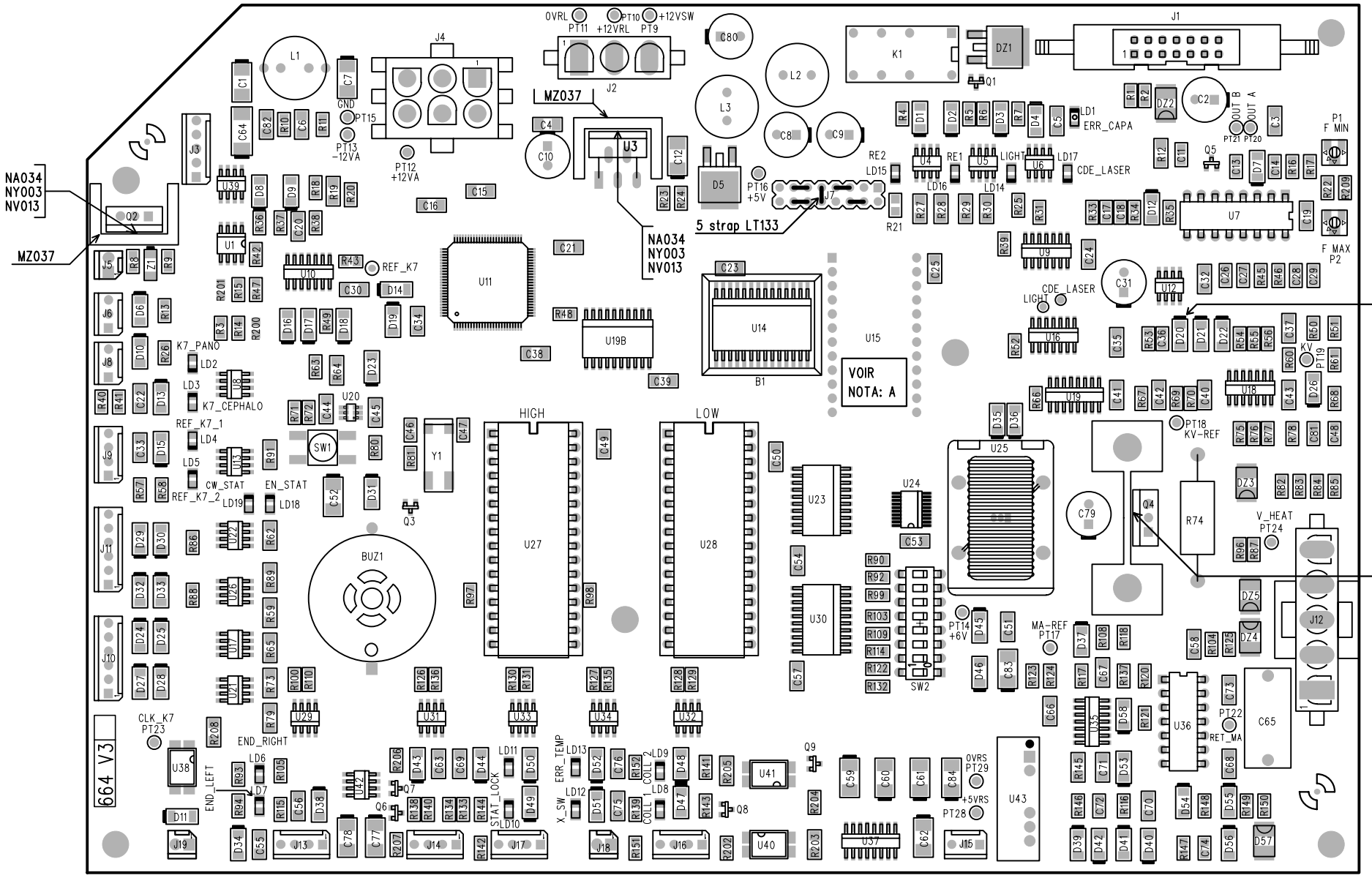


FUNCTION:

XXXXXXXX

TROPHY RADIOLOGIE

DRAWING Nr	CODE	Vers	REV	SHEET
900 664	SC 664	3	B	6/6



NOTA A:
suivant approvisionnement
monter:
U14 + B1 ou U15 + SUPPORT

NOTA B:
Remplacer par resistance
LK102 (Valeur: 10K)

Y
X TROPHY 12/03/02 MN664V3 / 941 664-3 / CABLAGE COMPOSANTS

CJ 687

CARTE PANORAMIC DISPLAY BOARD

2A	4221	AIC	12/03/02	MODIFICATIONS	O.NESME
1A	4133	AIC	05/11/01	CREATION	O.NESME
IND	AVIS	DRAW	DATE	MODIFICATIONS	APPR.by

MADE:
DATE:

TROPHY RADIOLOGIE

FUNCTION:
BLOC DIAGRAM

DRAWING Nr	CODE	Vers	REV	SHEET
900 687	SC 687	1	B	1/2

LCD1
AC-202AYIQB-72

PROGRAMMATION

U1
87LPC764BN

U2
P82B715TD

DECOUPLAGE DE U2

SUPPORT DE CIRCUIT INTEGRE TRADITIONNEL

V-BL

SW_INIT_POS

SW_LASER

LED_INIT_POS

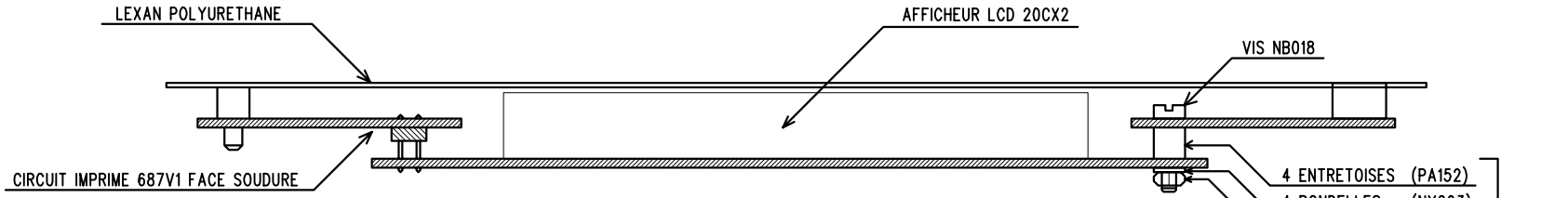
LED_XRAY

LED_LASER

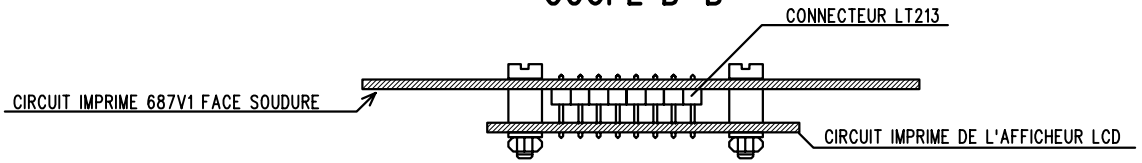
LED_ERREUR

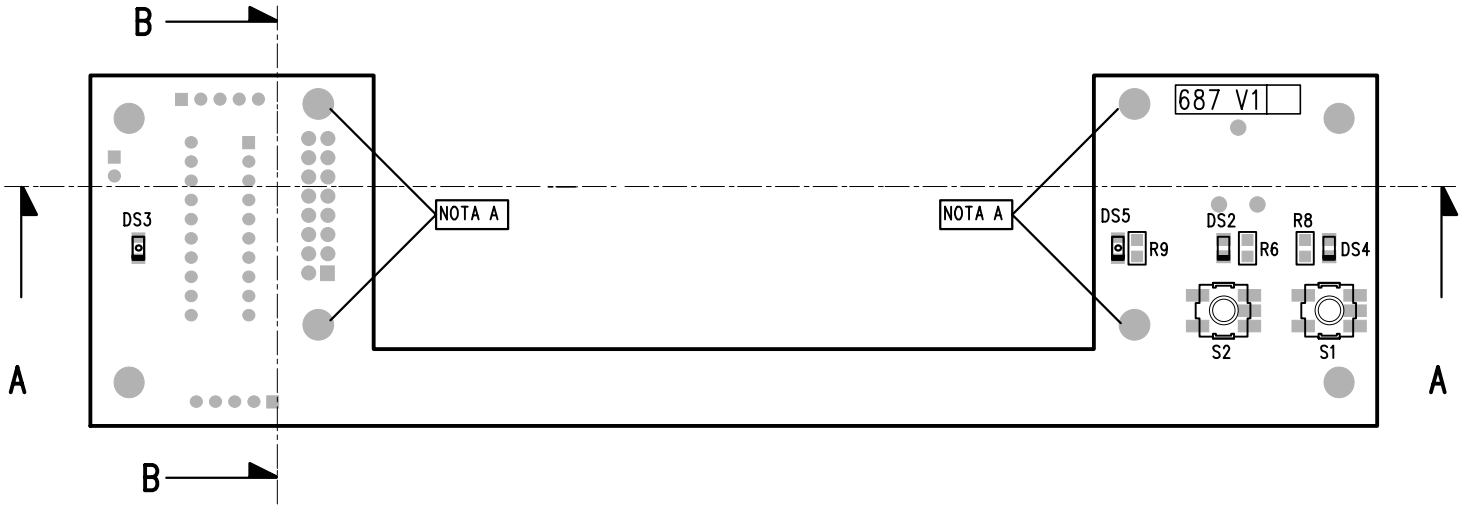
FUNCTION:	TROPHY RADIOLOGIE				
.	DRAWING Nr	CODE	Vers	REV	SHEET
	900 687-1A	SC 687	1	B	2/2

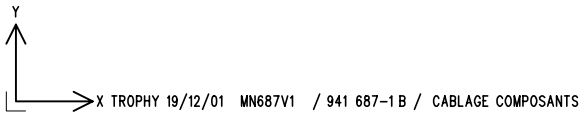
COUPE A-A

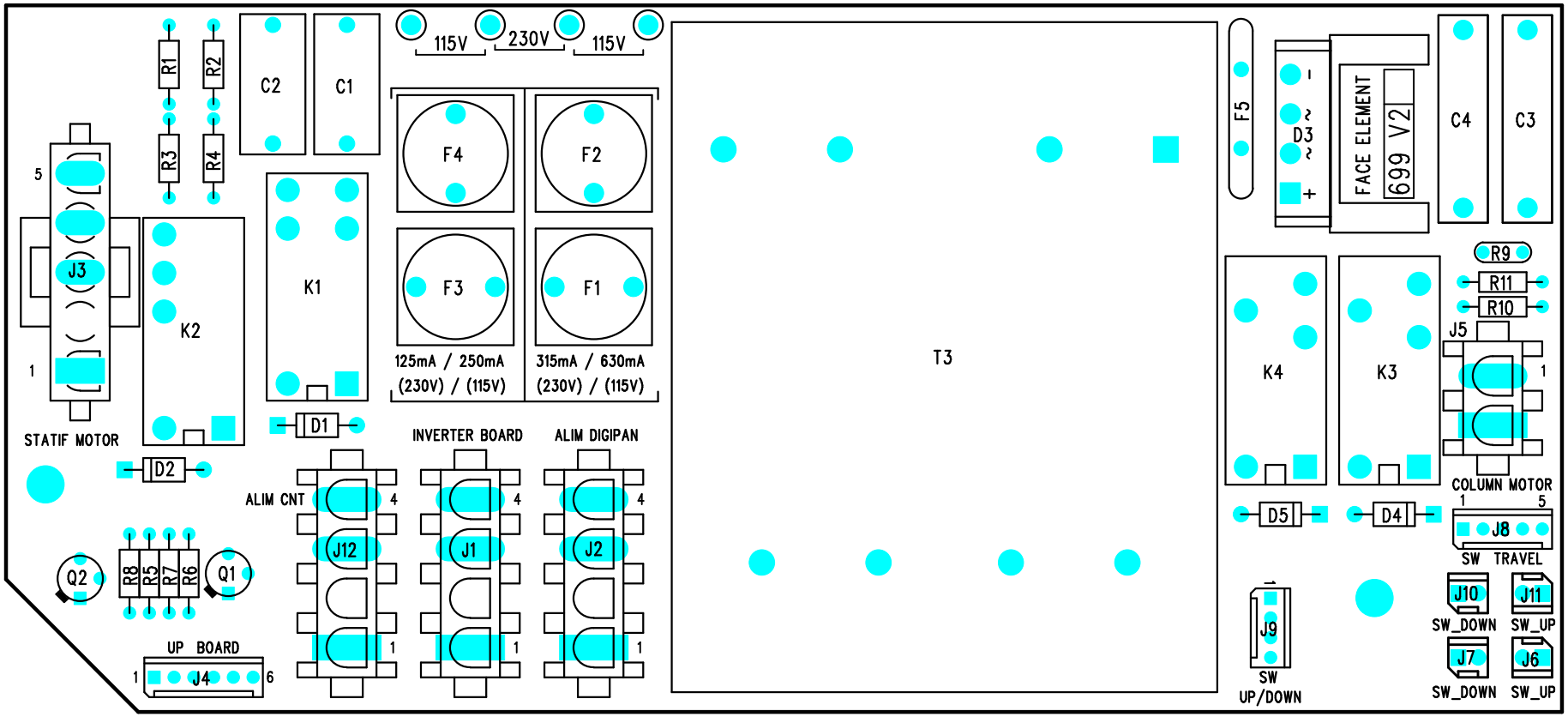


COUPE B-B







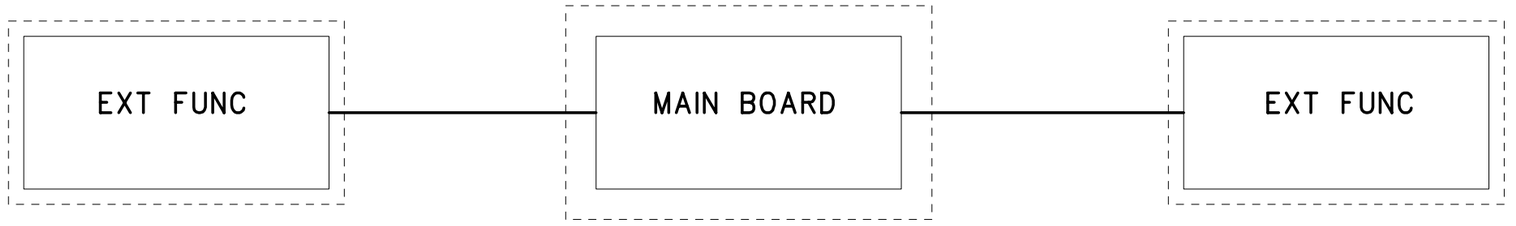


Y

X TROPHY 02/04/03 MN699V2 / 941 699-2 / CABLAGE COMPOSANTS

CJ 653

INVERTER PANORAMIQUE H.F. BOARD



IND	AVIS	DRAW	DATE	MODIFICATIONS	APPR.by
3B	4302	MPA	10/09/02	MODIFICATIONS	O. NESME
3A	4176	MPA	16/12/01	MODIFICATIONS	O. NESME
2A	4142	AIC	22/08/01	MODIFICATIONS	O. NESME
1A	3859	MPA	06/01/00	CREATION	O. NESME

MADE: O. NESME
DATE: 28/12/99

FUNCTION:
BLOC DIAGRAM

TROPHY RADIOLOGIE

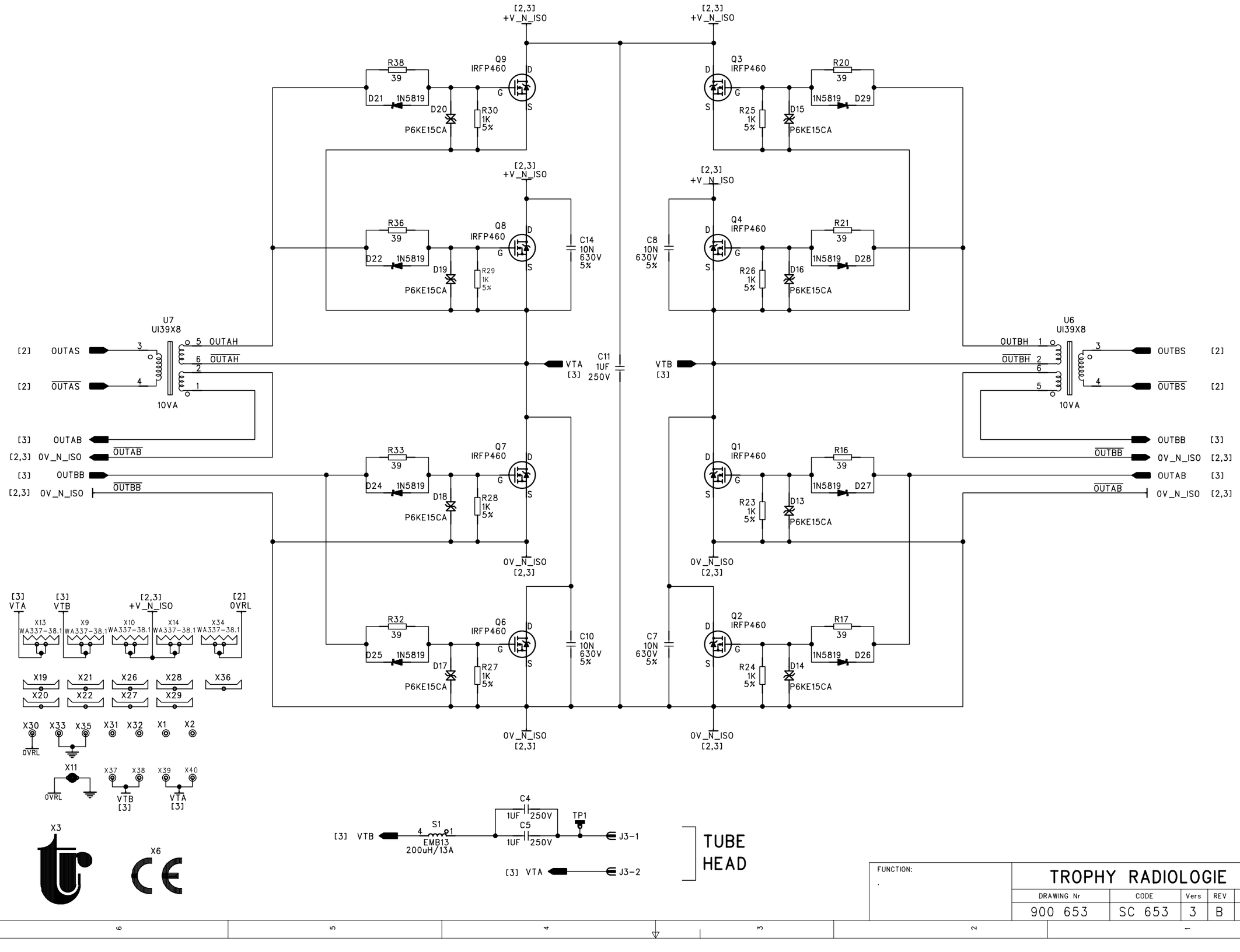
DRAWING Nr	CODE	Vers	REV	SHEET
900 653	SC 653	3	B	1/3

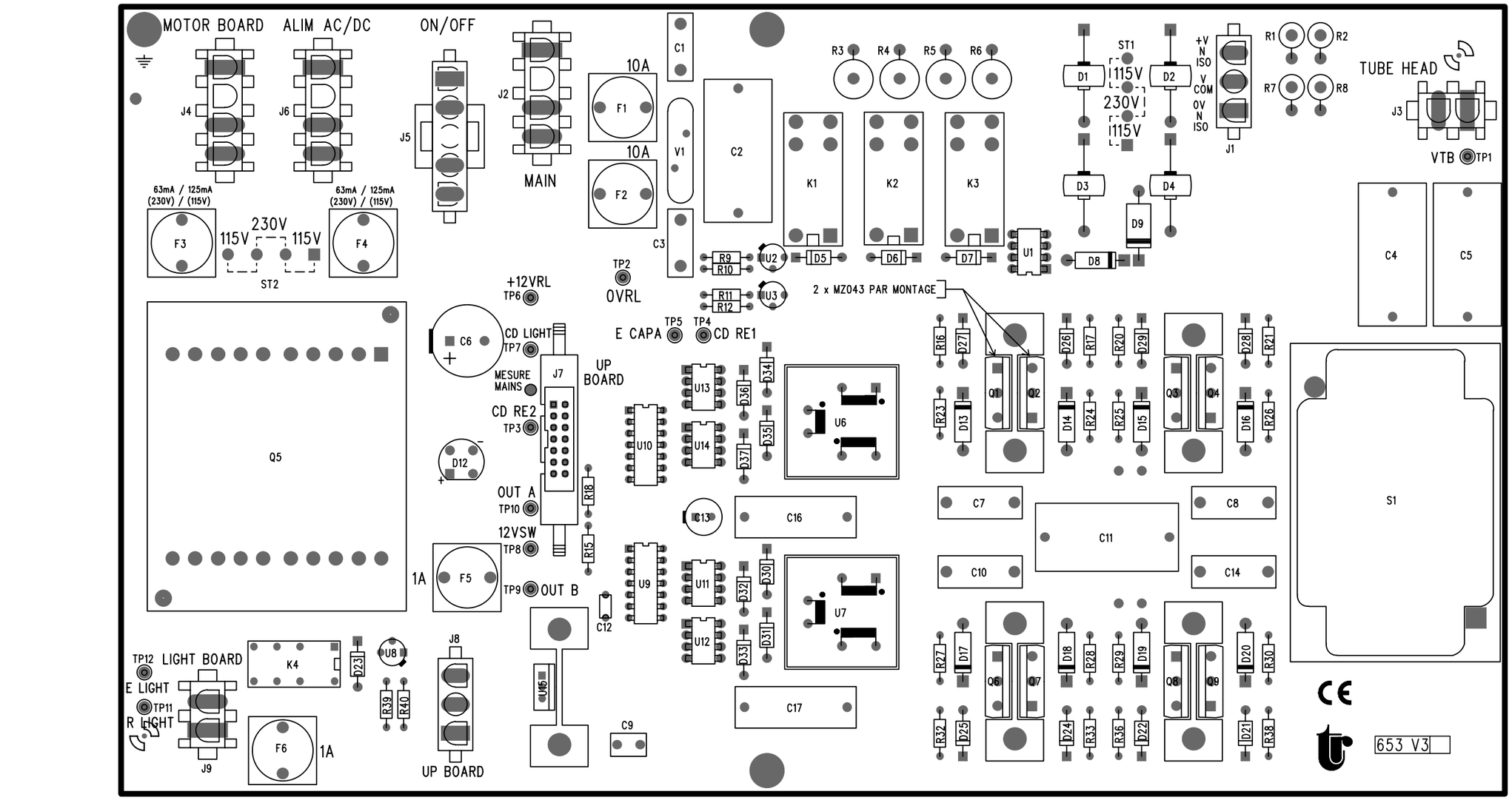
MAIN
P J2-4
N J2-3
N.C. J2-2
J2-1
MOTOR BOARD
PSW J4-4
NSW J4-3
N.C. J4-2
J4-1
ON/OFF
P J5-5
PSW J5-4
J5-3
N J5-2
NSW J5-1
ALIM AC/DC
PSW J6-4
NSW J6-3
N.C. J6-2
J6-1
LIGHT BOARD
E_LIGHT J9-2
R_LIGHT J9-1
JUP BOARD
12VSW J8-3
+12VRL J8-2
OVRL J8-1
JUP BOARD
OUTB J7-14
OUTA J7-13
GND J7-12
+12VA J7-11
CSA/B J7-10
OVRL J7-9
E_CAPA J7-8
OVRL J7-7
CD_RE1 J7-6
CD_RE2 J7-5
CD_LIGHT J7-4
OVRL J7-3
MES. MAINS J7-2
OVRL J7-1
LW109 (20A en 115V)
LW161 (10A en 250V)
X16
P.FUSIBLE F2
XF2 20A 250V
X5
10A/F 250V F1
X4
10A/F 250V P.FUSIBLE
X17
XF1 20A 250V
V1 GMOV
C2 1UF 250V
C1 2.2N 250V
C3 2.2N 250V
0VRL
K3-B
K1-B
K3-A
K1-A
1N5819 D5
TO18 2N2907 U2
+12VRL
CD_RE2 [2]
R10 1K 5%
R9 1K 5%
LW179 (125mA en 115V)
LW180 (63mA en 230V)
X18
P.FUSIBLE X8 F4
XF4 125 mA (115V)
63 mA.T CEI/UL
X23
P.FUSIBLE X7 F3
XF3 125 mA (115V)
63 mA.T CEI/UL
G52V-12DC
115V
230V
115V
ST2 A VIRER
Q5
45937
2RT/2A K4
1N5819 D23
TO18 2N2907 U8
CD_LIGHT [2]
R40 1K 5%
R39 1K 5%
TP12
TP11
X24
P.FUSIBLE X15 F6 1A/T
X41
X25
P.FUSIBLE X12 F5 1A/T
TP6 TP8
12VSW
U15 MC7815CT
OUT IN GND
C9 470N 63V 10%
+12VRL
C6 2200U 35V
D12 800V/1.5A
TP9 TP10 TP2 TP5 TP4 TP3 TP7
MESURE_MAINS
[3] +V_N_ISO
D1 MR756
D2 MR756
D3 MR756
D4 MR756
R1 22K 3W
R2 22K 3W
R7 22K 3W
R8 22K 3W
D9 1.5KE200CA
J1-3 +V_N_ISO
J1-2 V_COM
J1-1 0V_N_ISO
0V_N_ISO [3]
115V
230V
115V
ST1 A VIRER
R5 51 7W
R6 51 7W
R4 51 7W
R3 51 7W
2RT/5A K2
1N5819 D6
TO18 2N2907 U3
+12VRL
CD_RE1 [2]
R12 1K 5%
R11 1K 5%
D8 P6KE15CA
[2] E_CAPA
U1-A
U1-B
TLP621-2
TLP621-2
D7 1N5819
0VRL
+12VA [2]
U10-B MC14011B
[2] CSA/B
[2] OUTA
U11 TC4429CPA
VDD
IN
OUT
GND
NC
D30 1N5819
D31 1N5819
OUTAS [3]
U10-C MC14011B
U12 TC4429CPA
D32 1N5819
D33 1N5819
C17 10U 20% 63V
OUTAS [3]
U10-D MC14011B
U13 TC4429CPA
D34 1N5819
D35 1N5819
OUTBS [3]
U10-E MC14011B
U14 TC4429CPA
D36 1N5819
D37 1N5819
C16 10U 20% 63V
OUTBS [3]
R18 1K 5%
R15 1K 5%
U9-B CD40106
C12 2,2N 100V 10%
U9-C CD40106
U9-D CD40106
U9-A CD40106
U10-A MC14011B
VCC
GND
C13 47U 63V 20%

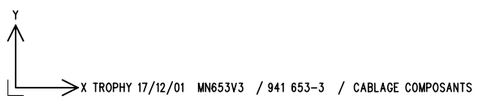
FUNCTION:
.

TROPHY RADIOLOGIE

DRAWING Nr	CODE	Vers	REV	SHEET
900 653	SC 653	3	B	2/3


[2,3] +V_N_ISO
R38 39
Q9 IRFP460
D21 1N5819
D20 P6KE15CA
R30 1K 5%
R20 39
Q3 IRFP460
D29 1N5819
D15 P6KE15CA
R25 1K 5%
R36 39
Q8 IRFP460
D22 1N5819
D19 P6KE15CA
R29 1K 5%
C14 10N 630V 5%
Q4 IRFP460
C8 10N 630V 5%
R21 39
D28 1N5819
D16 P6KE15CA
R26 1K 5%
U7 UI39X8
[2] OUTAS
[2] OUTAS
5 OUTAH
6 OUTAH
10VA
VTA [3]
C11 1UF 250V
VTB [3]
U6 UI39X8
OUTBH 1
OUTBH 2
OUTBS [2]
OUTBS [2]
10VA
[3] OUTAB
[2,3] 0V_N_ISO
OUTAB
[3] OUTBB
[2,3] 0V_N_ISO
OUTBB
OUTBB [3]
OUTBB 0V_N_ISO [2,3]
OUTAB [3]
OUTAB 0V_N_ISO [2,3]
R33 39
Q7 IRFP460
D24 1N5819
D18 P6KE15CA
R28 1K 5%
Q1 IRFP460
R16 39
D27 1N5819
D13 P6KE15CA
R23 1K 5%
0V_N_ISO [2,3]
R32 39
Q6 IRFP460
D25 1N5819
D17 P6KE15CA
R27 1K 5%
C10 10N 630V 5%
C7 10N 630V 5%
Q2 IRFP460
R17 39
D26 1N5819
D14 P6KE15CA
R24 1K 5%
[3] VTA
[3] VTB
[2,3] +V_N_ISO
[2] 0VRL
X13 WA337-38.1
X9 WA337-38.1
X10 WA337-38.1
X14 WA337-38.1
X34 WA337-38.1
X19 X21 X26 X28 X36
X20 X22 X27 X29
X30 X33 X35 X31 X32 X1 X2
0VRL
X11
X37 X38 X39 X40
VTB [3]
VTA [3]
X3
X6
C4 1UF 250V
C5 1UF 250V
TP1
[3] VTB
S1 EMB13 200uH/13A
J3-1
[3] VTA
J3-2
TUBE HEAD
FUNCTION:
.
TROPHY RADIOLOGIE
DRAWING Nr 900 653
CODE SC 653
Vers 3
REV B
SHEET 3/3


MOTOR BOARD
ALIM AC/DC
ON/OFF
MAIN
10A
10A
J4
J6
J5
J2
F1
F2
C1
V1
C2
C3
63mA / 125mA
(230V) / (115V)
63mA / 125mA
(230V) / (115V)
F3
F4
230V
115V
115V
ST2
R3
R4
R5
R6
K1
K2
K3
U1
D1
D2
D3
D4
D9
D8
ST1
115V
230V
115V
+V
N
ISO
V
COM
0V
N
ISO
J1
R1
R2
R7
R8
TUBE HEAD
J3
VTB
TP1
C4
C5
TP2
0VRL
+12VRL
TP6
R9
R10
R11
R12
U2
U3
D5
D6
D7
2 x MZ043 PAR MONTAGE
E CAPA
TP5
TP4
CD RE1
C6
CD LIGHT
TP7
MESURE
MAINS
CD RE2
TP3
J7
UP
BOARD
U13
U14
U10
D34
D36
D35
D37
U6
R16
D27
R23
D13
Q1
Q2
D26
R17
D14
R24
R20
D29
R25
D15
Q3
Q4
D28
R21
D16
R26
Q5
D12
OUT A
TP10
12VSW
TP8
TP9
OUT B
R18
R15
1A
F5
U9
U11
U12
C13
C16
C12
D32
D33
D30
D31
U7
C17
C9
U5
C7
C8
C11
C10
C14
S1
R27
D17
R32
D25
Q6
Q7
D18
R28
D24
R33
R29
D19
R36
D22
Q8
Q9
D20
R30
D21
R38
CE
653 V3
TP12
LIGHT BOARD
E LIGHT
TP11
R LIGHT
J9
K4
D23
U8
R39
R40
F6
1A
J8
UP BOARD


Y
X TROPHY 17/12/01 MN653V3 / 941 653-3 / CABLAGE COMPOSANTS